

ENVIRONMENTAL ASSESSMENT  
EA Number: DOI-BLM-CAN070-2011-006-EA  
LIVESTOCK GRAZING AUTHORIZATIONS  
CROOKS LAKE ALLOTMENT



Unnamed spring, summer 2008

Bureau of Land Management  
Surprise Field Office  
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# INTRODUCTION

This Environmental Assessment (EA) is prepared to disclose and analyze the environmental consequences of re-authorizing two livestock grazing permits on the Crooks Lake Allotment for a period of 10 years. The EA is a site-specific analysis of potential impacts that would occur as a result of one of the alternatives. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), compliance with other laws and policies affecting the alternatives. If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a grazing decision would be issued along with a FONSI statement, documenting the reasons why implementation of the selected actions would not result in “significant” environmental impacts.

## Background

The Crooks Lake Allotment is located four miles east of Fort Bidwell, California. The allotment lies in northeastern California and northwestern Nevada (see Map 1) and encompasses 44,185 acres, of which 36,860 acres are public land and 7,325 acres are privately owned. Current permitted use is 435 cattle from April 1 thru October 31; 4 horses are also authorized from April 15 thru October 31. Two livestock operators run cattle in common on the allotment; their permits were issued in 2004 and 2010. The amount of forage currently authorized on public land is 3,062 AUMs<sup>1</sup> by cattle and 26 AUMs by horses. The allotment has been authorized as 100% public land, although there are unfenced private lands within the allotment. In 1985 BLM and one of the livestock permittees entered into a cooperative Allotment Management Plan (AMP) that identified livestock grazing practices including, stocking rate, season of use, pasture rotation, and flexibility in livestock operations.

Elevation on the Crooks Lake Allotment varies from 4,500 to 6,500 feet. Much of the allotment is gentle slopes with low sagebrush/bunchgrass communities, Western and Utah juniper is common, and is encroaching into areas historically occupied by grasses and shrubs. A large portion of the allotment is within Crooks Lake and Fee Reservoir watershed. Annual precipitation is variable, but generally averages 10 to 12 inches.

## 1.1 Purpose and Need for the Action

The purpose of the action is to consider whether to reauthorize livestock grazing on the Crooks Lake Allotment. If reauthorized, grazing would be in accordance with 43 CFR 4100 and consistent with the provisions of the Taylor Grazing Act, Public Rangelands Improvement Act, and the Federal Land Policy and Management Act. The purpose of the action is also to ensure that all authorizations implement provisions of, and is in conformance with the Surprise Resource Management Plan (approved 2008), is in conformance with the Secretary Approved Rangeland Health Standards, and meets other applicable goals and objectives, including sustainable livestock grazing of public lands in a manner that achieves healthy rangelands,

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<sup>1</sup> An Animal Unit Month (AUM) is the amount of forage consumed by a cow-calf pair or equivalent (one bull, one horse) in one month. This is the standard way forage is allocated and billed on public lands.

riparian and wetland areas in good condition, and healthy wildlife populations, including the Greater sage-grouse.

The action is needed to replace livestock grazing permits issued under the provisions of the Appropriations Act.

## 1.2 Scoping History

A scoping letter was sent to 66 interested publics on January 17, 2008. This notice was also posted on the Surprise Field Office website.

On February 19, 2008, Western Watersheds Project (WWP) submitted scoping comments.

On February 20, 2008 and September 1, 2009, the Nevada Department of Wildlife submitted comments.

BLM periodically meets with local tribal groups to discuss this grazing permit renewal and other projects being proposed. BLM also periodically meets with the Crooks Lakes Allotment permittees to discuss annual operating instructions or plans, and to address other issues that arise.

The following comments were received during scoping:

- WWP submitted general comments concerning NEPA requirements and the permit renewal process for 21 allotments including Crooks Lake.
- Nevada Department of Wildlife (NDOW) expressed concerns regarding wild horse grazing impacts, particularly since the allotment is outside of a herd management area; the necessity to establish Desired Plant Communities (DPCs), rangeland monitoring studies to measure wildlife use on rested pastures and to address possible future conflicts.

A Rangeland Health Assessment (RHA) and Determination was completed in December 2008.

On January 9, 2009, after considering scoping comments, the 2008 Rangeland Health Assessment and other recent monitoring data, BLM issued NEPA document # DOI-BLM-CA-370-2009-0004- Categorical Exclusion (CX) and the Notice of Field Manager's Proposed Decision to the permittees and all interested publics regarding the Crooks Lake Allotment Grazing Permit Renewal. On January 22, 2009 Western Watersheds Project (WWP) filed a protest of the Proposed Decision. Following the protest, BLM issued Instruction Memorandum # IM-2009-199, discontinuing the use of a CX for grazing permit issuance. Consequently, the Field Manager's Proposed Decision was not implemented and this EA was prepared. The protest points WWP submitted January 22, 2009 are treated as scoping comments for the proposed Crooks Lake Allotment grazing permit renewal.

WWP scoping comments included recommendations on the scoping and content of the environmental assessment related to alternatives, direct, indirect and cumulative impacts of livestock grazing on the Greater sage-grouse (*Centrocercus urophasianus*) and on its habitat, impacts to the pygmy rabbit (*Brachylagus idahoensis*); impacts to the North Hays Range Cultural Resource Management Area (CRMA) established by the 2008 RMP; livestock grazing effects on wildfire intervals, vegetation recovery following fire, and wildfire effects on sage-grouse and sage-grouse habitats; and the impacts of livestock grazing on other resources.

### **1.3 Issues Selected for Evaluation**

The Surprise Field Office Interdisciplinary Team reviewed public scoping comments, the Crooks Lake Allotment RHA, other available monitoring data, and resource information; the RMP and identified the following issues for this EA process:

- What livestock grazing practices are needed to ensure that the life cycle requirements of the Greater sage-grouse, pygmy rabbit and other special status species are met?
- What are the resource management objectives, including Desired Plant Communities for the allotment and what livestock grazing practices will allow those objectives to be achieved?
- The 1985 AMP – what provisions should be removed, modified, carried forward?
- What impacts would future juniper management projects have on livestock grazing practices?

### **1.4 Prevention of Unnecessary or Undue Degradation**

In addition to the management prescriptions discussed in this EA, including all terms and conditions, BLM may use its authority to close an area of the allotment to grazing use or take other measures to protect resources at any time, if needed. Therefore, issuance of a grazing lease with appropriate terms and conditions is consistent with BLM's responsibility to manage the public's use, occupancy, and development of the public lands and prevent unnecessary or undue degradation of the lands. (43 USC 1732(b)).

### **1.5 Relationship to Statutes, Regulations, and Plans:**

#### **Agreement between State Director and State Historic Preservation Officer Protocol Amendment for Renewal of Grazing Leases**

The BLM has responsibility to manage cultural resources on public lands consistent with applicable procedures and agreements. To comply with the National Historic Preservation Act the BLM is required to assess the condition of cultural resources on each grazing allotment prior to the renewing of grazing allotment permits. In August 2007, the State Director, California Bureau of Land Management, the California State Historic Preservation Officer (SHPO) and the Nevada SHPO addressed the issue of the National Historic Preservation Act (NHPA) Section 106 compliance procedures for processing grazing permit lease renewals for livestock as defined in 43 CFR 4100.0-5. The State Director and the SHPOs amended the 2007 State Protocol Agreement between California Bureau of Land Management and The California State Historic Preservation Officer with the 2007 Grazing Amendment, Supplemental Procedures for Livestock Grazing Permit/Lease Renewal.

The results of grazing allotment assessments may be used to modify grazing permits. If cultural resources are identified as receiving impacts as a result of livestock management or grazing on a specific allotment, the stipulations of the grazing permit will be modified to reflect compliance with the Bureau's responsibility to manage and protect cultural resources. Consultation regarding affected cultural resources will take place with the appropriate Native American tribes and the California and/or Nevada State Historic Preservation Office(s). All cultural resources will be afforded protection consistent with law and policy, including appropriate mitigation

measures.

## **1.6 Plan Conformance:**

### **Determination:**

The Proposed Action is in conformance with the Surprise Resource Management Plan (RMP), and as adopted by the Record of Decision (April 2008), the NW Nevada and NE California Rangeland Health Standards and Guidelines for Livestock Grazing. The Standards and Guidelines for Livestock Grazing can be found in the Surprise RMP and is available on the Surprise Field Office web site.

### **Rationale:**

The Proposed Action would occur in an area allocated for livestock grazing in the Surprise Resource Management Plan and is consistent with the land use decisions and resource management goals and objectives of the RMP in Sections 2.2, 2.8, 2.10, 2.15, 2.16, 2.17, 2.19, and 2.22 .

## **1.7 Rangeland (Land) Health Standards**

The Rangeland Health Assessment and Determination for Crooks Lake Allotment were completed in December 2008. The Crooks Lake Allotment Determination is incorporated into this EA by reference, and is available from the Surprise Field Office, or on Surprise Field Office web page at [http://www.blm.gov/ca/st/en/fo/surprise/grazing\\_permit\\_renewals.html](http://www.blm.gov/ca/st/en/fo/surprise/grazing_permit_renewals.html). The allotment met the Secretary of the Interior Approved Rangeland Health Standards as summarized in Table 1.7.1:

Table 1.7.1 Achievement of Land Health Standards Crooks Lake Allotment (Rangeland Health Assessment)

Rangeland Health Standard	Meets Standard	Does Not Meet Standard	Current livestock are a causal factor for not meeting Yes or No	Remarks (locations, etc.)
Upland Soils	✓			<u>The Standard for Upland Soils</u> is currently being met for the Crooks Lake Allotment #01107. The standard achievement determination was based on information/data from the 1999 Washoe County Soil Surveys - North Part, Crooks Lake Upland Health Assessments, actual use data, composite utilization mapping and photos taken during the assessment process, along with management records, monitoring data, and observations on the allotment since 1988. Data from the four Upland Health Assessments rated Soil/Site Stability as stable and Hydrologic Function as functioning for all sites evaluated. Ocular observations made during the upland health assessments also verified the above determination that the allotment has an abundance of total cover to protect the soil from wind and water (raindrop and surface flow) impacts.
Stream Health	✓			<u>The Standard for Stream Health</u> is currently being met for the Crooks Lake Allotment #01107. The standard achievement determination was based on data collected during the Riparian Functional Assessment and water quality sampling on 06/26/2008 for an unnamed drainage. The unnamed drainage is between Crooks Lake and Poison Springs. The two designated reaches within this drainage are properly functioning and maintain a healthy component of herbaceous and woody vegetation (willows and aspens).
Riparian/ Wetland	✓			<u>The Standard for Riparian Wetland Areas</u> is currently being met for the Crooks Lake Allotment #01107. A variety of species and age classes were noted at all sites. Riparian and wetland vegetation is controlling erosion, stabilizing stream banks, shading water areas to reduce water temperature, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater and increasing recharge of ground water that is characteristic for these sites. Vegetation surrounding seeps and springs is controlling erosion and reflects the potential natural vegetation for the site.
Water Quality	✓			<u>The Standard for Water Quality</u> is currently being met for the Crooks Lake Allotment #01107. The standard achievement determination was based on data collected during the Riparian Functional Assessment and water quality sampling on 06/26/2008 for an unnamed drainage. The unnamed drainage is between Crooks Lake and Poison Springs. The two designated reaches within this drainage are properly functioning and maintain a healthy component of herbaceous and woody vegetation (willows and aspens). The presence of trout and macro-invertebrates as well as the vigorous and healthy vegetation component supports a conclusion that this standard is being met.

Rangeland Health Standard	Meets Standard	Does Not Meet Standard	Current livestock are a causal factor for not meeting Yes or No	Remarks (locations, etc.)
Bio-diversity	✓			<p><b>The Standard for Biodiversity is currently being met for the Crooks Lake Allotment.</b> Monitoring has indicated that several key upland vegetative parameters have been compromised as a result of historic grazing. However, these changes have not resulted in observed biological diversity outside of expected natural fluctuations.</p> <p>Riparian values are considered very high for the allotment. The presence of trout, dace, and abundant macroinvertebrates in the small stream reaches, coupled with the vigorous and diverse distribution of key riparian woody and herbaceous vegetation provides a strong indicator that all necessary components are being met for instream aquatic life in the allotment.</p>

## PROPOSED ACTION AND ALTERNATIVES

### Actions Common to Alternatives 1 & 2:

#### Desired Plant Communities (DPC)

Alternatives 1 and 2 include DPCs that would be developed in coordination with state agencies, permittees and interested publics. The DPCs consider current vegetative conditions with site potential and desired product of the site. The DPC may or may not be similar to the potential natural community (PNC) as stated in the NRCS Ecological Site Descriptions (ESD). For example, if past management actions have resulted in decreased site capability or vegetation communities have crossed thresholds, then PNC may not be achieved in reasonable timeframes. The DPCs are developed considering the actual ability of a vegetation community to achieve the desired conditions. Baseline data to develop DPCs for all major ecological sites by pasture on the Crooks Lake Allotment is expected to be collected by 2014.

### 2.1 Alternative 1 - Proposed Action Issue 10 year Permits for Livestock grazing under a Two Year Rotational Grazing System

This proposed action is to authorize livestock grazing on the Crooks Lake Allotment for both cattle and horses under a two year rotational grazing system. The proposed livestock grazing practices including the rotational grazing system are designed to:

- Provide native bunchgrasses with regular rest or deferment during the critical growth period for these species (April, May and June).
- Provide substantial areas for sage-grouse breeding, nesting and brood-rearing without livestock use.
- Provide that areas grazed by livestock have residual herbaceous vegetation for soil protection and wildlife cover at the end of the grazing period.

The livestock grazing practices to be implemented include:

- The rotational grazing plan would utilize pastures primarily in the southern portion of the allotment on even years and primarily in the northern portion of the allotment on odd years. Table 2.2.1 and Maps 2 and 3 provide details on the pasture rotation, seasons of use and stocking rates.
- Cattle and horses would have a season of use of April 15 through October 31.
- Horse use would be allowed in Pastures I and II for a total of 26 AUMs.
- Authorized use by cattle would be 2,880 AUMS.
- The two permittees would be billed for their public land grazing use at 94% and 97% public land respectively, in recognition of the 7,325 acres of unfenced private land.
- Table 2.2.2 provides details on the two grazing permits.

Pastures VII, VIII, and IX contain high percentages (80% to 94%) of private land and would be used to:

- Supplement High Pastures (Pasture VIII would supplement Pasture V; Pasture IX would supplement Pasture VI)
- Managed as gather pastures to support livestock moves during or at the end of the grazing season (Pasture VII).

Table 2.2.1 Proposed Grazing Schedule:

Pasture	Even Years (South)			Odd Years (North)		
	No. of cattle	Use dates	AUMs	No. of cattle	Use dates	AUMs
Seeding I		REST		200	6/1 – 6/15	93
				or 100	6/1 – 6/30	93
Seeding II	464	4/15 – 5/15	446	464	4/15 – 5/15	446
III Intermediate		REST		464	5/16 – 5/31	231
				264	6/1 – 6/15	123
IV Intermediate	464	5/16 – 6/15	446		REST	
V & VIII High		REST		464	6/16 – 9/30	1,541
VI & IX High	464	7/1 – 10/31	1,771		REST	
VII <sup>2</sup>		Fall Gather			Pasture Move Holding & Fall Gather	
X	464	6/16 – 6/30	216	464	10/1 – 10/31	446
		<b>Total AUMs</b>	<b>2,879</b>		<b>Total AUMs</b>	<b>2,880</b>

<sup>2</sup> Pasture VII is 94% privately owned. Season of use and livestock numbers are determined by private land owner; resource objectives apply to public land portion of the pasture, use is determined annually during AOP meeting.

In addition to the normal grazing schedule and rotational system, alternate grazing systems would be employed in the event that juniper management projects are implemented in the allotment in the future. These alternate systems would provide two years of growing season rest on native grasses species as required in the Sage Steppe Ecosystem Restoration Strategy (USFS-BLM 2008).

- Juniper management projects in Pastures V, VI, VIII, or IX
  - Pasture X would be grazed two consecutive years from 6/16 to 7/15
  - The rest of the rotation would remain the same
  - Grazing would begin after growing season (July 16) in treated pastures
- Juniper management projects in Pastures III, or IV
  - Graze seedings and high pastures as scheduled
  - Rest the pasture with juniper treatment for two consecutive years and graze the non-treatment pasture two years in a row.

Terms and conditions, range improvements, and monitoring requirements are as follows:  
Mandatory Terms and Conditions are shown in Table 2.2.2

Table 2.2.2 Mandatory Terms & Conditions:

Operator	Number of Livestock	Kind	From	To	Percent Public Land	AUMs
Fee Ranch, Inc.	400	Cattle	4/15	10/31	<b>94%</b>	<b>2,472</b>
	4	Horse	4/15	10/31		<b>26</b>
Owen Schafer	64	Cattle	4/15	10/31	<b>97%</b>	<b>408</b>
<b>TOTAL</b>						<b>2,906</b>

Other Terms and Conditions (43 CFR 4130.3-2):

- Grazing use offered or authorized by BLM is subject to all provisions of the grazing regulations (43 CFR Parts 4100) and other applicable law and regulation. Grazing authorizations may be modified in accordance with regulation to attain progress towards achieving rangeland health standards (subpart 4180.1 and 4180.2 Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration).
- The Crooks Lake Allotment Management Plan (AMP) will be amended by the Field Manager's Final Decision.
- Billing will be based on actual use reports submitted within 15 days following the last authorized take off date for the permit. Actual use reports will be submitted no later than November 15. If the actual use report is not submitted, permittee(s) will be billed and liable for their full permitted active use, and after-the-fact billing privileges will be revoked.
- All range improvements must be maintained prior to livestock turnout. All assigned fence maintenance must be completed annually, even if your permit is not activated. Failure to complete assigned fence maintenance may result in suspension of your grazing authorization.

- Salt and mineral supplements may be used in the allotment to improve livestock distribution. These supplements must not be located closer than ¼ mile from any natural or artificial water source, archaeological site, aspen stands, sage-grouse leks or riparian areas.
- An annual pre-season livestock turn-out meeting will be held with the permittee(s) to discuss previous years use and document current years grazing schedule. Livestock may not be turned out prior to this meeting, and without prior written approval from the authorized officer.
- The permittee has the flexibility to adjust livestock numbers; however, annual adjustments may not exceed permitted active use, amount of total use in any given pasture, and must occur during the permitted season of use. Annual livestock adjustments may be required by BLM based on utilization, drought, water availability, saturated soils or other conditions.
- Maximum allowable utilization for upland grasses is the upper end of moderate (60%) in all pastures (including the seedings) as measured by approved BLM utilization monitoring protocol as contained in Interagency Technical Reference 1734-3, 1996.
- The BLM will coordinate with the livestock operator to ensure that livestock are not turned out within 6/10th mile of an active lek site.
- Gates into adjacent pastures may be opened up to five days ahead of the planned pasture move in order to facilitate livestock gathering. Pastures must be 95% clean of livestock within 5 days of the pasture move, and 100% clean within 10 days.
- Livestock trailing is allowed through pastures not scheduled between private lands on the allotment, i.e. Crooks Meadow, Holly Lake and home ranches/pastures in the Surprise Valley. Trailing would occur on existing roads, and for less than one day. Trailing permits are required if livestock are trailed across the Range Improvements

#### Range Improvements:

Currently there are thirty four (34) range improvements associated with Crooks Lake Allotment that include water developments (small stockponds), crested wheatgrass seedings, allotment boundary fences, and pasture division fences, which sometimes are short drift or gaps fences that tie into natural barriers (see Map 2, Appendix B). There are no new projects proposed or needed under any of the action alternatives at this time. Permittees would be required to continue maintenance of all projects to BLM standards, as identified in the Cooperative Range Improvement Agreements.

#### Monitoring:

Utilization data would be collected from each pasture at the end of the growing season or following the end of the grazing season. Utilization transects would be conducted on major ecological sites, photo trend plots, and key areas. This information would also be used to produce use pattern maps.

Fourteen Photo Trend (5X5) sites were established from 1969 to 1971 throughout the Crooks Lake Allotment. Vegetation species cover data would be recorded from these sites at least once during the duration of the grazing permit to assess vegetative health and apparent trend. Monitoring would be conducted in accordance with BLM policy following protocols from BLM/Interagency Technical Reference 1734-3, and other approved manuals and technical references.

Riparian stubble height would be measured at the end of grazing season on key riparian areas (see Table 2.2.5 below).

Aspen stands in Pastures III, IV, VI, and the aspen stand southeast of Irish Spring would be monitored by establishing age class and density transects, with landscape photo points.

Assess riparian health on Poison Creek and two other water quality monitoring sites to assess water quality and riparian health parameters.

Long Term (to be accomplished by 2012) and Short Term (measurable annually) Allotment Objectives;

#### Vegetation Objectives:

##### Long Term:

- Long term vegetation objectives will be based on DPCs when established.
- Reduce juniper cover in sagebrush ecological sites to less than 15%, prioritizing treatments around springs and seeps, aspen stands, and important sage grouse habitat areas. Juniper removal is timed to avoid sage grouse nesting season.
- Produce healthy aspen stands (upland and riparian) through measures that will promote regeneration and growth, and create size and age class diversity.
- Increase cover and density of key deep rooted grass species in pastures III and IV.

##### Short Term:

- Annual utilization of native perennial grass (key species = *Poa secunda*, *Achnatherum thurberianum*, *Festuca idahoensis*, *Elymus elymoides*,) in the major use areas within all pastures would not exceed 60% at end of grazing period. Utilization cage sites would be established and landscape appearance method as described in Interagency Technical Reference 1734-3, 1996 would be used to measure utilization on the uplands.
- Limit utilization of aspen suckers to 20% of browsed suckers at the end of the grazing season. Identify aspen stands within the allotment that are at high risk of replacement by juniper or not demonstrating suckering levels consistent with long term clone maintenance. Initiate removal/thinning projects by 2013.

#### Riparian Objectives:

##### Long Term:

- Maintain or progress towards PFC on key riparian areas. These areas consist of the unnamed spring, lower reach (of unnamed drainage) and Poison Creek (see table 2.2.5 below).

Table 2.2.5 Key Riparian Areas:

Source Name	Pasture	Size	Riparian Functional Rating and year	Comments	Existing Developments or fencing
Unnamed drainage (lower reach- between Crooks Lake and Poison Creek)	III	0.75 miles	PFC 2007	Diverse population of macroinvertebrates and riparian vegetation, (lower reach- between Crooks Lake and Poison Creek)	none
WSI #832 unnamed spring/meadow	III	1 acre	PFC 2007	Meadow system is in excellent condition	none
Poison Creek	III	.5 miles	PFC 2010	Vigorous vegetation and diverse population of macroinvertebrates	none

Short Term:

- Maintain at minimum a 6” stubble height at a location to be established on Poison Creek to maintain lower water temperatures for fish habitat and maintenance of PFC.
- Annual utilization on the woody species (willows) would not exceed 20% at the end of the grazing season on key riparian areas as identified in Table 2.2.5.

Soil Objectives:

Long Term:

- Continue maintenance of soil stability by promoting deep rooted native perennial grasses; and continue achievement of rangeland health standard for soils.

Short Term:

- Continue compliance with utilization guidelines.

Wildlife Objectives:

Long Term:

- Maintain or improve existing sage-grouse habitat within the allotment.
- Maintain at minimum a 4” stubble height of key upland perennial grass species (measured in the drip line of big sagebrush) at the end of the grazing season within two miles of leks.

### **Monitoring Objectives:**

- Review current key areas with permittee and other affected interests to confirm they are appropriately located to continue being used and/or establish new key areas within two years.
- Collect updated trend data for existing key areas by 2014. Establish new key areas if necessary; priority areas are pastures II, III, and IV.

### **2.2 Alternative 2: Issue 10 Year Permits for Livestock Grazing under a Four Year Rotational Grazing System with Decreased Stocking Rates**

Alternative 1 would authorize livestock grazing on the Crooks Lake Allotment for both cattle and horses using a four year rotational grazing system with decreased stocking rates. Forage allocations were based upon the allotment's average actual use for the last 10 years. The proposed livestock grazing practices including the rotational grazing system is designed to:

- Provide native bunchgrasses with regular rest or deferment during the critical growth period for these species (April, May and June).
- Provide substantial areas for sage-grouse breeding, nesting and brood-rearing without livestock use.
- Provide that areas grazed by livestock have residual herbaceous vegetation for soil protection and wildlife cover at the end of the grazing period.

Alternative 2 would implement the following livestock grazing practices:

- The rotational grazing plan would utilize pastures primarily in the southern portion of the allotment on even years and primarily in the northern portion of the allotment on odd years. Table 2.3.1 and Maps 4-8 provide details on the pasture rotation, seasons of use and stocking rates.
- Cattle and horses would have a season of use of April 15 through October 31.
- Horse use would be allowed in Pastures I and II for a total of 26 AUMs.
- Authorized use by cattle would be 1,704 AUMS.
- The two permittees would be billed for their public land grazing use at 94% and 97% public land respectively, in recognition of the 7,325 acres of unfenced private land.
- Table 2.4.5 provides details on the two grazing permits.

Pastures VII, VIII, and IX contain a high percentage of private land, therefore pastures would be used to:

- Supplement or managed in combination with the high Pastures (Pasture VIII would supplement Pasture V; Pasture IX would supplement Pasture VI)
- Pasture VII is managed as gather pasture to support livestock moves during or at the end of the grazing season.
- No alternate grazing system is proposed to provide growing season rest following juniper management projects

The tables below display the four pasture rest/rotation system:  
Table 2.2.1 Year 1 Grazing Schedule:

Pasture	No. of cattle	Scheduled Use Dates				
		4/15-5/15	5/16-6/30	7/1-8/15	8/16-9/30	10/1-10/31
Seeding I	100	Year1 96 AUMs				
Seeding II	175	Year1 169 AUMs				
III Intermediate	275		Year1 392 AUMs			
IV Intermediate	275			Year1 392 AUMs		
V & VIII High	275				Year1 392 AUMs	
VI & IX High	275	REST	REST	REST	REST	REST
X	275					Year1 264 AUMs

Table 2.2.2: Year 2 Grazing Schedule:

Pasture	No. of cattle	Scheduled Use Dates				
		4/15-5/15	5/16-6/30	7/1-8/15	8/16-9/30	10/1-10/31
Seeding I	100	Year2 96 AUMs				
Seeding II	175	Year2 169 AUMs				
III Intermediate	275	REST	REST	REST	REST	REST
IV Intermediate	275		Year2 392 AUMs			
V & VIII High	275			Year2 392 AUMs		
VI & IX High	275				Year2 392 AUMs	
X	275					Year2 264 AUMs

Table 2.2.3: Year 3 Grazing Schedule:

Pasture	No. of cattle	Scheduled Use Dates				
		4/15-5/15	5/16-6/30	7/1-8/15	8/16-9/30	10/1-10/31
Seeding I	100	Year3 96 AUMs				
Seeding II	175	Year3 169 AUMs				
III Intermediate	275			Year3 392 AUMs		
IV Intermediate	275	REST	REST	REST	REST	REST
V & VIII High	275		Year3 392 AUMs			
VI & IX High	275				Year3 392 AUMs	
X	275					Year3 264 AUMs

Table 2.2.4: Year 4 Grazing Schedule:

Pasture	No. of cattle	Scheduled Use Dates				
		4/15-5/15	5/16-6/30	7/1-8/15	8/16-9/30	10/1-10/31
Seeding I	100	Year4 96 AUMs				
Seeding II	175	Year4 169 AUMs				
III Intermediate	275				Year4 392 AUMs	
IV Intermediate	275			Year4 392 AUMs		
V & VIII High	275	REST	REST	REST	REST	REST
VI & IX High	275		Year4 392 AUMs			
X	275					Year4 264 AUMs

Terms and conditions, range improvements, and monitoring requirements are as follows:

Table 2.2.5 Mandatory Terms and Conditions:

Operator	Number of Livestock	Kind	From	To	Percent Public Land	AUMs
Fee Ranch, Inc.	235	Cattle	4/15	10/31	<b>94%</b>	<b>1,449</b>
	4	Horse	4/15	10/31		<b>26</b>
Owen Schafer	40	Cattle	4/15	10/31	<b>97%</b>	<b>255</b>
<b>TOTAL</b>						<b>1,729</b>

Other Terms and Conditions:

Same as the Proposed Action

Range Improvements:

No new projects are proposed or necessary to implement this alternative, or to meet rangeland health standards, and land use plan objectives at this time.

Monitoring:

Same as the Proposed Action

### **2.3 Alternative 3 - Current Management (No Action)**

This alternative involves issuing new permits with the same terms and conditions as under the expired authorizations. Grazing use would be in compliance with all provisions of the 1985 AMP.

Mandatory terms and conditions currently in effect would continue as follows:

Table 2.3.1 Mandatory Terms and Conditions:

Operator	Number of Livestock	Kind	From	To	Percent Public Land	AUMs
Fee Ranch, Inc.	373	Cattle	4/1	10/31	<b>100%</b>	2,624
	4	Horse	4/15	10/31		26
Owen Schafer	63	Cattle	4/1	10/31	<b>100%</b>	439

Current Livestock Numbers and Season of Use

Table 2.3.2 Existing Grazing Schedule (See Maps 9 and 10):

Pasture	YEAR 1			YEAR 2		
	No. of cattle	Use dates	AUMs	No. of cattle	Use dates	AUMs
Seeding I	435	4/1 – 4/30	429	435	4/1 – 4/30	429
Seeding II						
III Intermediate	435	5/1 – 6/15	659	REST		
IV Intermediate	REST			435	5/1 – 6/15	659
V High	435	6/16 – 10/31	1,974	REST		
VI High	REST			435	6/16 – 10/31	1,974
Total Cattle AUMs			3,062			3,062
4 Horse 4/15 – 10/31			26	4 Horse 4/15 – 10/31		26
VII, VIII, IX, X Utility/Private <sup>3</sup>	373	6/16 – 10/31		373	6/16 – 10/31	

The permittees can make management adjustments to the grazing plan as described in the Expanded Flexibility section of the 1985 Crooks Lake Allotment Management Plan. This provision is described in detail in section 3.2.1 of this document -Environmental Analysis, Livestock Management.

Other Terms and Conditions:

- Grazing use offered or authorized by BLM is subject to all provisions of the grazing regulations (43 CFR Parts 4100) and other applicable law and regulation. Grazing use authorization may be modified in accordance with regulation to attain progress towards achieving rangeland health standards (subpart 4180.1 and 4180.2 Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration). Any changes to the permit would occur after consultation, cooperation and coordination with the grazing permittee and other interested parties.
- Grazing use on the Crooks Lake Allotment will be in accordance with this Proposed/Final Grazing Decision and other provisions of the Crooks Lake Allotment Management Plan. Any livestock use found outside the limits of flexibility of the AMP without prior authorization, will be subject to unauthorized use actions.
- Billings will be based on actual use reports which are to be submitted within 15 days of the last authorized take off date for each allotment. If actual use reports are not submitted within 30 days, the permittee will be billed and liable for their full active

<sup>3</sup> Private fields are used in conjunction with public pastures; Pastures VII and X are generally used as gathering fields near the end of the grazing season as part of the AMP's expanded flexibility provisions.

- permitted use. Repeated delays in submitting actual use reports and/or paying grazing billings will revoke actual use billing privileges.
- Salt and/or mineral supplements will be placed no closer than ¼ mile from any public water source.
  - All range improvements must be maintained to BLM standards prior to livestock turnout. All assigned fence maintenance must be completed annually, even if your permit is not activated. Failure to complete assigned fence maintenance may result in suspension of your grazing authorization.
  - The livestock operators are responsible for moving livestock in a timely manner before allowable use levels are exceeded.

#### Range Improvements:

Maintenance of all existing projects would continue and no new projects are proposed (same as Proposed Action).

#### Monitoring:

Fourteen 5X5 Photo Trend Plots were established on the allotment between 1969 and 1971. Plot sizes are five feet by five feet and located in selected areas intended to be representative of each pasture. Plant cover data and photographs are periodically collected at the plots for the purpose of determining apparent trend.

Utilization data would be collected from each pasture near the end of the growing season or following the end of the grazing season following monitoring protocols. Utilization transects would be conducted on major ecological sites, on photo trend plots, and key areas. This information can also be used to create use pattern maps.

## **2.4 Alternative 4 - No Grazing**

This alternative would cancel livestock grazing permits on the Crooks Lake Allotment. As a result, grazing would not be authorized on this allotment. Under this alternative, BLM would initiate the process in accordance with the 43 CFR parts 4100 and 1600 to eliminate grazing on the allotment. Since this alternative is not in conformance with the Surprise RMP, the land use plan amendment process would also need to be completed to remove the Crooks Lake Allotment as an area designated as suitable for livestock grazing.

## **ENVIRONMENTAL ANALYSIS**

A variety of laws, regulations, executive orders, and policy directives mandate that the effects of a proposed action and alternatives on certain supplemental authorities (formerly known as critical elements) of the human environment and several other resource elements commonly affected by livestock grazing be considered. Not all of the supplemental authorities that require inclusion in this EA will be present, or if they are present, may not be affected by the proposed action and alternatives. Only those mandatory supplemental authorities that are present and affected, or need to be considered, are described in this section.

Background material related to other resources is available on the Surprise Field Office web site and is within the Surprise RMP Final Environmental Impact Statement and Proposed Resource Management Plan.

### 3.1 Supplemental Authorities

To comply with the National Environmental Policy Act (NEPA), the following supplemental authorities of the human environment (Table 3.1.1) are subject to requirements specified in statute, regulation or executive order and must be considered:

Table 3.1.1 Supplemental Authorities of the Human Environment:

Supplemental Authority	Not present	Present Not Affected	Present and Affected
Air Quality**		✓	
Areas of Critical Environmental Concern (ACEC's)**	✓		
Cultural Resources			✓
Environmental Justice**	✓		
Farmlands, Prime and Unique**	✓		
Floodplains**	✓		
Invasive, Non-native Species			✓
Global Climate Change			✓
Migratory Birds			✓
Native American Religious Concerns			✓
Threatened and Endangered Species			✓
Wastes (Hazardous or Solid)	✓		
Water Quality (Surface or Ground)			✓
Wetlands & Riparian Zones			✓
Wild & Scenic Rivers**	✓		
Wilderness Areas**	✓		

\*\* These Supplemental Authorities are either not present or present and not affected and will not be discussed further in this document.

Table 3.1.2 below displays other resources considered for analysis:

Table 3.1.2 Other Resources Considered:

Other Resources	Not present	Present Not Affected	Present and Affected
Livestock Management			✓
Recreation		✓	
Social and Economic Values			✓
Soils			✓
Vegetation (including special status plants)			✓
Wilderness (lands with wilderness characteristics)			✓
Wild Horse and Burros			✓
Wildlife Resources (including special status animal species)			✓

### 3.1.1 Cultural Resources

#### Affected Environment:

The Crooks Lake Allotment is located in the Northern Hays Range; an area in which cultural resource site densities are generally considered to be high. The Northern Hays Range Cultural Resource Management Area (CRMA) was created in 2007 as a result of the high density of cultural resource sites in the area. The CRMA designation was developed by the Surprise Field Office and is intended to provide heightened awareness of sensitive resources by increasing law enforcement patrols and providing research opportunities for scientific institutions.

Approximately 75% of the Crooks Lake Allotment is located in the North Hays Range CRMA. The Crooks Lake Allotment consists of 36,860 acres of public land and 7,325 acres of privately owned land. Of the 44,185 acre allotment, approximately 1,865 acres have been inventoried for cultural resources employing a stratified sampling technique using 100 meter-wide transects. As a result of the inventory, 36 archaeological sites were discovered and recorded. The types of sites discovered within the allotment are prehistoric and are characterized as follows: petroglyphs, temporary camps, sites associated with resources processing and hunting, and lithic reduction sites. Although these sites have not been formally evaluated for the National Register of Historic Places (NRHP), all sites are considered eligible to the National Register by the BLM until they are found to be not eligible.

In accordance with the 2004 State Protocol Agreement between California Bureau of Land Management and The California State Historic Preservation Officer and the 2004 Grazing Amendment, Supplemental Procedures for Livestock Grazing Permit/Lease Renewal, a Cultural Resource Assessment is scheduled for 2012. In accordance with the protocol the permit may be renewed prior to the cultural resource assessment being completed.

#### Environmental Consequences:

Under the Proposed Action cultural resource sites have the potential to be affected by range management activities including cattle grazing. Sites that are located in areas where cattle tend

to congregate are most vulnerable to livestock impacts. Areas of congregation tend to occur at both developed and undeveloped watering locations, salting locations, along fence lines, and in areas where shade is provided. The types of impacts that can occur are: trailing, which can displace and/or break artifacts, and denude vegetation thereby destabilizing the soil causing erosion; wallowing, which causes subsurface disturbance to cultural resources containing buried deposits thereby compromising stratigraphic integrity of a site; and trampling, which causes artifact displacement and breakage.

#### Impacts of Alternative 1:

AUMs would be reduced by 183 therefore the direct and indirect impacts to cultural resources would be less than under Current Management, but more than under Alternative 1 and the Alternative 4. Reduced stocking numbers and the pasture rest rotation would promote vegetation recovery, augmenting soil stabilization and reducing erosion that may be occurring in some cultural resource sites.

#### Impacts of Alternative 2:

Under Alternative 2 AUMs would be reduced by 1360 therefore the direct and indirect impacts to cultural resources would be less than under the Alternative 1, and Current Management, but more than under Alternative 4. Reduced stocking numbers and the pasture rest rotation would promote vegetation recovery, augmenting soil stabilization and reducing erosion that may be occurring in some cultural resource sites.

#### Impacts of Current Management (No Action):

Under the Current Management potential impacts to cultural resources, such as trailing, wallowing, etc., could continue to occur from range management activities, including cattle grazing. There are fewer pasture rest rotation seasons under this alternative, therefore erosion issues associated with areas of heavy use, which can indirectly affect cultural resources, would continue to occur. Under Current Management potential impacts to cultural resources from range management activities, including cattle grazing would be greater than under Alternative 1, 2 and 4.

#### Impacts of No Grazing:

Under this alternative there would be no direct or indirect impacts to cultural resources from range management activities.

### **3.1.2 Invasive, Non-Native Species**

#### Affected Environment:

Weeds are defined in this EA as plants that are invasive, noxious and non-native. Invasive weeds have the ability to out-compete and replace native plants, sometimes creating their own monotypic plant community. Uncontrolled invasive and noxious weed infestations can decrease native vegetation diversity and wildlife habitats. Other impacts are a decline in forage, and agricultural crop values. Once established, invasive and noxious weeds can be extremely difficult to eradicate; and returning affected plant communities to their native conditions can be a challenge. Weeds are often spread by vehicles, animals and birds, as well as natural processes such as wind or water.

Since 2001, the Crooks Lake Allotment has been surveyed for the presence of noxious weeds. In 2001, eleven noxious weed sites were inventoried and treated; these include 6 bull thistle and 5 Canada thistle sites. Nine of the sites are located along the edge of Fee Reservoir, and there are 2 bull thistle sites treated at Kilby Flat Reservoir in the northwest portion of Pasture V. In 2010, Fee Reservoir was dry. Twenty-three bull thistle and sixteen Canada thistle sites were inventoried and chemically treated on the lakebed and banks; the sites totaled 2 acres and 3 acres respectively. In 2011, Fee Reservoir filled completely from winter precipitation. The weed sites inventoried and treated in 2010 were observed to be inundated with water in June, 2011. All of the sites inventoried since 2001 were located around Fee Reservoir and below the dam in Poison Creek drainage. Other non-native invasive species including cheatgrass, Japanese brome and burr butter cup were observed in localized patches during the rangeland health assessments.

#### Environmental Consequences:

##### Impacts of Proposed Action:

Based on current distribution of weeds, there is no evidence that livestock grazing in the allotment has contributed to the establishment of any noxious weed sites. Livestock grazing in general represents a low risk for the introduction and spread of noxious/invasive weed species; continued livestock use would be expected to produce similar low risks of introduction. Noxious and invasive weeds introduced or become established in the allotment would be expected to be detected early with continued monitoring and would be treated following protocols under the weed management program. Weed monitoring also occurs during routine livestock compliance inspections, utilization determinations, riparian and upland health functional assessments. Under the Proposed Action, upland areas in less than desired ecological condition (Pastures III & IV) are also expected to improve, which makes the allotment less susceptible to cheatgrass and to other invasive/noxious weed invasion and/or expansion in size.

##### Impacts of Alternative 2:

Impacts of Alternative 2 on weeds management is expected to be the same as the Proposed Action. BLM would continue to treat and monitor known noxious and invasive weeds sites. Any new weed sites are expected to be detected early with continued monitoring and these sites would also be treated under the current weed management program.

##### Impacts of No Action (Current Management):

There would be no changes in livestock grazing practices, therefore there would be no additional impacts associated with the No Action alternative. Based on current distribution of weeds, there is no confirmation that livestock grazing in the allotment has contributed to the establishment of any noxious weeding sites. Livestock grazing in general represents a low risk for the introduction and spread of noxious/invasive weed species; continued livestock use would be expected to produce similar low risks of introduction. Noxious and invasive weeds which are introduced or become established in the allotment would be expected to be detected early with continued monitoring and these sites would be treated under the current weed management program.

##### Impacts of No Grazing:

Under the no grazing alternative, there would be no impacts from noxious and invasive weeds as a result of livestock grazing. However, likelihood of weed expansion or the risk of new weeds becoming established would continue, and as well as treatment of weeds on existing and new sites detected.

### **3.1.3 Global Climate Change**

#### **Affected Environment:**

Rising greenhouse gas (GHG) levels are likely contributing to global climate change. In the project area, climate change is typically expected to result in warmer, drier conditions and potentially more extreme weather events. Natural processes such as volcanic eruptions contribute to the increasing levels of GHGs in the atmosphere. Human activities related to the Proposed Action, livestock grazing, also contribute GHGs in the form of methane.

The assessment of GHG emissions and climate change remains in its formative phase. The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of climate change on resources in the project area. In addition, while the proposed action may involve some future contribution of GHGs, these contributions would not have a noticeable or measurable effect, independently or cumulatively, on a phenomenon occurring at the global scale believed to be due to more than a century of human activities.

#### **Environmental Consequences:**

##### **Impacts of Proposed Action:**

The amount of GHG emitted by livestock and their management under the Proposed Action is unknown. However, any contribution of GHG due to either alternative is not likely to have an effect on global climate.

##### **Impacts of Alternative 2:**

The amount of GHG emitted by livestock and their management under this alternative is unknown. However, contribution of GHGs due to any of the alternatives is not likely to have an effect on global climate.

##### **Impacts of No Action (Current Management):**

The amount of GHG emitted by livestock and their management under this alternative is unknown. However, any contribution of GHG due to either alternative is not likely to have an effect on global climate.

##### **Impacts of No Grazing:**

As stated above, the amount of GHG contributed by human activities associated with cattle grazing is unknown; however, the GHG emitted by livestock (methane) would be eliminated in the project area due to the removal of cattle. However it is likely that the total livestock production in the local area or region would remain the same as production is shifted from public to private lands.

#### **3.1.4 Migratory Birds**

See Section 3.2.7 Wildlife Resources including Migratory Birds and Threatened and Endangered Species Section

#### **3.1.5 Native American Religious Concerns**

Affected Environment:

The Crooks Lake Allotment is within the territorial boundaries of the Kidütökadö band of the Northern Paiute. Many members of the Kidütökadö continue to reside at the Fort Bidwell Reservation. The BLM Surprise Field Office conducted government to government consultation with the Fort Bidwell Tribal Council regarding the Crooks Lake Allotment Permit Renewal. During a meeting on January 10, 2009 the tribe expressed no concerns regarding the renewal of the Crooks Lake Allotment grazing permits; therefore, no known impacts are expected to the tribe, and this issue will not be further discussed in this EA.

#### **3.1.6 Threatened and Endangered Species**

Covered Under: Wildlife Resources including Migratory Birds and Threatened and Endangered Species

#### **3.1.7 Surface Water Quality**

Affected Environment:

There is no groundwater pumping associated with livestock grazing within the allotment; therefore groundwater will not be considered further in this assessment.

Surface water within the allotment is associated with three situations: 1) water from springs that support small meadow systems (lentic systems); 2) small creeks below fed by large springs or irrigation reservoirs; and 3) water captured in small stock ponds. No water sources within the Crooks Lake Allotment have been listed for exceeding State water quality standards.

Water quality has been indirectly evaluated at the riparian key area WSI 832, this lentic system is a one acre meadow system located in Pasture III, and is considered representative of riparian conditions on the allotment. In 2007 this site was determined to be in Properly Functioning Condition with no indication that suggested poor water quality.

Three stream reaches have been evaluated for functionality in the allotment. The functionality protocols include evaluation of water quality indicators. The evaluated stream reaches include two sections of the un-named drainage between Crooks Lake and Fee Reservoir which is used to transport irrigation water to private hay lands outside the allotment and a portion of Poison Creek. The upper reach of the un-named drainage is 0.9 miles long and located in Pasture X, the lower reach of this drainage is located in Pasture III and the evaluated reach of Poison Creek is located in Pastures III (1.5 miles) and IV (1 mile).

Both reaches of the un-named drainage and Poison Springs Creek were within the Nevada Standard for water temperature and pH when measurements were taken in June of 2008. These drainages are hydrologically stable with a large number of rocks and cobbles to armor the system

as well as adequate herbaceous and woody (willows and aspen) vegetative components. Given the current conditions of riparian areas and the stream supporting native assemblage of fish including speckled dace, trout, and various macro invertebrates (see 2008 RHA), the water quality standard for the allotment was met. As described below in the *WETLANDS/RIPARIAN ZONES* section, these reaches were assessed to be in properly functioning condition.

There are 18 small stock ponds within the allotment that hold water during a portion of each year. From a water quality standpoint the beneficial use is considered livestock grazing. Based upon the requirements of the LHS for water quality, the water quality is consistent with the intended use of these sites.

#### Environmental Consequences:

##### Impacts of Proposed Action:

Implementation of the Proposed Action would reduce grazing by two weeks in Pastures III and IV, reduce the number of cattle grazing within Pasture III by 100 head for the last two weeks of grazing and rest each pasture every other year. This would result in a net reduction of 448 AUMs of use within the two pastures compared to current management during the rest year. Riparian vegetation associated with both lentic and lotic sites would continue to meet Land Health Standards and remain in Properly Functioning Condition. As woody cover increases, water temperature in both flowing and standing water would be expected to decrease over time due to shading. Due to a reduction of use in Pasture X compared to current management (from 4.5 months to 1 - 1.5 months) summer water temperatures in Pasture X would be expected to drop due to improvements in riparian cover along watered sites. Utilization limits in key riparian areas and a minimum of 6 inch stubble height along Poison Creek would contribute to less water contamination and lower water temperatures due to increased residual vegetation providing increased filtering of sediments and more stream shading.

Currently wild horses use Pastures IV, V, and VI seasonally and yearlong during mild winters. Some or all these wild horses are likely to remain in these pastures during term of the grazing permits. Wild horses tend to use some localized meadow (lentic) systems year-long, and therefore these riparian areas could decline in condition in the long term. Year-long use by even a few horses on small meadow systems can result in heavy grazing and trampling of riparian vegetation with resulting negative impacts on water quality.

##### Impacts of Alternative 2:

Although the stocking rates are substantially less in this alternative than the Proposed Action or No Action alternatives, providing rest in one of four years and allowing cattle grazing during the hot season in two of four years would result in increased livestock grazing in the both lentic and lotic riparian systems in Pastures III and IV. Combined with year-long horse use it would be expected that water quality of sites within the two pastures would decline as riparian communities decrease in cover and vigor. The result would be increased water temperatures and increased bacterial and nutrient loading. Use of Pasture X (mostly private with some public riparian) every year in the fall as a gathering field is expected to have slightly more impacts to riparian habitat and water quality because cattle will be concentrated in one pasture after the growing season as opposed to 4 pastures, over a longer period of time than existing management. When compared to the Proposed Action and No Action alternatives this

alternative is expected to have adverse impacts to riparian habitat and water quality.

**Impacts of No Action (Current Management):**

The continued presence of wild horses on a year-long basis in Pasture IV would offset benefits to water quality because of the preferential use of riparian habitats by wild horses during the hot summer months when other forages decline in quality. Under this alternative, impacts to riparian habitat from cattle would remain the same therefore water quality standards would be expected to continue to meet standards during the life of the grazing permit.

**Impacts of No Grazing:**

Under the No Grazing Alternative, water quality would be expected to improve at a faster rate; water quality would be expected to be better when compared to all other alternatives due to the lack of cattle grazing along creeks and other riparian sites. However, year-long wild horse use is expected to continue into the foreseeable future, which would offset the beneficial impacts of no cattle grazing on lentic or lotic systems.

### **3.1.8 Wetland/Riparian Zones**

**Affected Environment:**

The following is summarized from the 2008 Rangeland Health Determination, available from the Surprise Field Office. Lentic riparian conditions on the allotment are based on Properly Functioning Condition (PFC) information from key area WSI 832, an unnamed one acre riparian meadow in Pasture III. This site was determined to at PFC in 1985 and rated PFC again in 2007. Based upon this assessment and observations of the staff, the 2008 Rangeland Health Determination concluded, that all drainages, springs/seeps and pit reservoirs are currently meeting the needs of beneficial uses for watering livestock, wild horses and wildlife.”

The two unnamed reaches in the drainage between Crooks Lake and Fee Reservoir and a reach of Poison Creek were used to determine the functionality of lotic riparian resources in the allotment. This unnamed stream riparian system serves to transport irrigation water to private hay lands outside the allotment; therefore stream flow is highly variable and controlled by the water rights holder. The upper reach was defined as that area between Crooks Lake and private lands on Crooks Meadow. The lower reach occurs between Crooks Meadow and Poison Springs. The lower reach is located entirely within Pasture III and has flowing water for approximately 0.75 miles of its 2.3 mile length on public land. The upper reach segment is located entirely within Pasture X and consists of approximately 0.9 mile of perennial flow on public land. Both reaches were evaluated as PFC. Poison Creek between Poison Springs and Fee Reservoir is approximately 2.5 miles in length and rated PFC in 2010 (see table 3.1.8.1below).

Table 3.1.8.1 Crooks Lake Allotment Riparian Functional Assessments:

Source Name	Pasture	Size	Riparian Functional Rating and year	Comments	Existing Developments or fencing
<b>Lentic</b>					
WSI #832 unnamed spring/meadow	III	1 acre	PFC* 2007	Meadow system is in excellent condition	None
<b>Lotic</b>					
Unnamed drainage (upper reach)	X	0.9 miles	PFC 2007	Diverse population of macroinvertebrates and riparian vegetation	None
Unnamed drainage (lower reach)	III	0.75 miles	PFC 2007	Diverse population of macroinvertebrates and riparian vegetation	None
Poison Springs Creek	III, IV	2.5 miles	PFC 2010	Diverse population of riparian vegetation	None

\* **PFC = Proper Functioning Condition**

The majority of water sources within the Crooks Lake Allotment are developed pit reservoirs, large irrigation reservoirs, or intermittent streams that only hold water during the spring and early summer periods. Developed water sources (i.e. water troughs, tanks, pit reservoirs) are not assessed for riparian function.

#### Environmental Consequences:

#### Impacts of Proposed Action:

The 2008 Rangeland Health Assessment and Determination, documented that the allotment is meeting standards for stream health, water quality, riparian and wetland sites. Under the Proposed Action riparian areas would continue to meet Land Health Standards. Implementation of the Proposed Action would reduce grazing by two weeks in Pastures III and IV, reduce the number of cattle grazing within Pasture III by 100 head for the last two weeks of grazing period and provide for one full year of rest for each pasture every other year. This would reduce grazing use by 448 AUMs within the two pastures, when compared to current management during the rest year. Riparian vegetation associated with both lentic and lotic sites would continue to meet Land Health Standards and remain in Properly Functioning Condition. Woody riparian cover increases are expected to continue. Due to a reduction of use in Pasture X compared to current management (from 4.5 months to 1 - 1.5 months) riparian conditions in Pasture X would be expected to improve as riparian cover along watered sites increases. Key riparian areas utilization limits of minimum of 6 inch stubble height along Poison Creek would contribute increased residual vegetation and more shading. Livestock trampling and hoof action would decrease when compared to existing management because of the decreased livestock use (AUMs). Implementation of livestock management grazing practices including: rest or deferment, utilization limits, and the institution of a 6 inch stubble height requirement along

Poison Creek are expected to maintain or improve riparian functionality within the allotment and specifically along Poison Creek.

Under the Proposed Action, improvements in woody riparian vegetation would continue leading to increases in stream shading. A diverse composition of herbaceous and woody riparian plants would be maintained on lentic and lotic system as a result of implementing the Proposed Action. These hydrologic process improvements would allow effective sediment capture and water storage within riparian zones. Under the Proposed Action, riparian areas in Pastures III and IV would continue to provide suitable habitat for invertebrates and rainbow trout.

Because wild horses are likely to remain in Pastures IV, V, and VI yearlong during term of the grazing permits, some localized meadow (lentic) habitat impacts would be expected by this yearlong grazing use. Year-long use by even a few horses on small meadow systems can result in heavy grazing and trampling of riparian vegetation.

Under the Proposed Action, no new water sources would be developed; therefore there would be no impacts from new projects.

#### Impacts of Alternative 2:

Although the stocking rates are substantially less in this alternative than the Proposed Action or No Action alternatives, providing rest in one of four years and allowing cattle grazing during the hot season in two of four years would result in increased livestock grazing in the both lentic and lotic riparian systems in Pastures III and IV. Combined with year-long horse use it would be expected that water quality of sites within the two pastures would decline as riparian communities decrease in cover and vigor. Use of Pasture X (mostly private with some public riparian) every year in the fall as a gathering field is expected to have slightly more impacts to riparian habitat because cattle will be concentrated in one pasture after the growing season as opposed to 4 pastures over a longer period of time with existing management. Compared to the Proposed Action and No Action alternatives this alternative is expected to have adverse impacts to riparian habitat and water quality.

Alternative 2 would likely have negative impacts to a majority of riparian habitat within the allotment when compared to the Proposed Action and No Action alternative. This is due to the change in rest periods with Pastures III and IV going from rest every other year to rest only once every four years. In two of the three grazing seasons, Pastures III and IV would also be used more during the hot season than either the Proposed Action or No Action alternatives; therefore woody riparian plants would be expected to be negatively impacted. Over time, decreases in woody vegetation may degrade riparian areas to the point where suitable habitat for invertebrates and cold water fish such as rainbow trout would also be degraded due to the reduction in stream shading and vegetation important to instream processes. Riparian areas would continue to provide water to wildlife, livestock and wild horses. Over time, degradation of riparian habitat would likely result in less water holding capacity of these systems.

Under Alternative 2, no new water sources would be developed, therefore impacts of any water developments on wildlife would be nonexistent.

#### Impacts of No Action (Current Management):

Riparian areas that were assessed during the Rangeland Health Assessment in 2008 all rated at PFC. With implementation of the No Action Alternative, riparian wetland areas would remain in PFC and would continue to provide water and riparian habitat for wildlife, livestock and wild horses. The No Action Alternative would retain the Expanded Flexibility and actual grazing use could be increased in the future. No AUM reduction would occur with this alternative. Riparian degradation could slightly increase if AUM increases provided for in “Expanded Flexibility” were implemented. A diverse composition of herbaceous and woody riparian plants would continue to exist under the No Action Alternative and would effectively trap sediment and store water within riparian zones. Rainbow trout and aquatic invertebrate habitats would remain within suitable parameters for these species and would continue to improve although at a slower rate than under the Proposed Action due to slightly more AUMs and a longer season of use. Improvements in woody riparian plant composition would result in increased stream shading providing a slight benefit to aquatic invertebrates and rainbow trout.

Under the No Action Alternative, no new water sources would be developed, therefore impacts of any water developments on wildlife would be nonexistent.

Under this Alternative riparian wetland areas would continue to maintain proper functioning condition and provide water and riparian habitat for wildlife, livestock and wild horses. Although some provisions of Expanded Flexibility has not been used in the recent past, under the No Action Alternative grazing use could be increased by 15% every year, and the season of use can be extended up to 60 days. This could increase duration of grazing use on riparian areas, which might result in riparian degradation in the long term. Woody riparian vegetation would increase at a slower rate than under the Proposed Action. If grazing were to continue at current levels, riparian areas would continue to provide suitable habitat for invertebrates and cold water fish; however riparian conditions would improve at a slower rate than the Proposed Action. But, a diverse composition of herbaceous and woody riparian plants would continue to exist and would effectively trap sediment and store water within riparian zones. The continued presence of wild horses on a year-long basis in Pasture IV would offset benefits to riparian systems because of the preferential use of riparian habitats by wild horses during the hot summer months when other forages decline in quality.

#### Impacts of No Grazing:

Under the No Grazing Alternative, riparian wetland areas would improve at a faster rate than under the other alternatives. With the No Grazing Alternative, riparian wetland areas would continue to provide water and riparian habitat for wildlife, livestock and wild horses. Riparian areas would continue to provide suitable habitat for invertebrates and cold water fish. Riparian wetland areas would remain in PFC and woody riparian vegetation would increase at a faster rate than under the Proposed Action due to little grazing pressure. Due to potential increases in predation risk, the greater structural diversity of woody plants expected in lotic riparian areas would not benefit sage-grouse. A diverse composition of herbaceous and woody riparian plants would continue to exist and would trap sediment and store water within riparian zones at a faster rate than the Proposed Action due to more vegetative cover. Due to lack of grazing pressure, plant species diversity would be expected to increase within riparian zones. Under this alternative, riparian vegetation in the long term would begin to become decadent and vegetation

growth would be slightly decreased due to increased matting from dead vegetation. Decadent vegetation would be negligible to nonexistent in areas where wild horses were present. Under the No Grazing Alternative, riparian wetland areas would initially improve at a faster rate than under the Proposed Action. Riparian wetland areas would remain in proper functioning condition and woody riparian vegetation would increase at a faster rate than under the Proposed Action. Riparian wetland areas would continue to provide water and riparian habitat for wildlife and wild horses. Woody riparian vegetation would increase stream shading at a faster rate than the Proposed Action, providing a slight benefit to aquatic organisms. Riparian areas would continue to provide water and riparian habitats to wildlife, livestock and wild horses. A diverse composition of herbaceous and woody riparian plants would continue to exist under the No Grazing Alternative and would effectively trap sediment and store water within riparian zones. Riparian areas would continue to provide suitable habitat for invertebrates and cold water fish. Under the No Grazing Alternative, invertebrates and fish would benefit slightly from the stream shading and increased water storage within riparian areas. Increased stream shading and increased water storage is expected to be less than the Proposed Action. The lack of cattle and wild horse grazing would result in riparian vegetation in the long term becoming decadent and vegetation growth would decrease slightly due to increased matting from dead vegetation. Where wild horses are still present on the allotment, vegetation would continue to be grazed and impacted from yearlong use.

Map 6 in Appendix B illustrates the lotic and lentic sites that have been assessed on the allotment.

## **3.2 OTHER RESOURCES**

### **3.2.1 Livestock Management**

#### **Affected Environment:**

The current management plan authorizes 435 cattle and 4 domestic horses to utilize 3,088 active AUMs on the allotment from April 1 to October 31. The main components of the current Crooks Lake Allotment Management Plan are utilization limits and early use to allow for regrowth on the seeded pastures (I and II); utilization limits and rest on the intermediate pastures (III and IV); and deferred use, rest and utilization limits on the high pastures (V and VI). The meadow pastures (VII, VIII, IX, and X) receive deferred use each year. Livestock turn-out and gathering off the allotment is staggered over a period of four to six weeks. The stocking rate for all native pastures is subject to moderate use limitations described in the Range Inspection Section of the current AMP. The AMP and former land use plan allowed up to 80% utilization on crested wheatgrass seedings in Pastures I and II. The current management provides rest or deferred use and utilization limits on native pastures which allows perennial grass species rest from livestock grazing during critical growth periods.

The basic grazing plan consists of a rest-rotation/deferred grazing system. Currently the permittees have the option (without BLM notification) of making management adjustments to the grazing plan as described in the Expanded Flexibility provision in the Crooks Lake AMP. Expanded Flexibility is designed to give the permittees a larger role in managing grazing on this allotment. The flexibility clause gives the permittees the ability to make changes to the sequence of pasture moves, adjust the season of use and make adjustments to the stocking rate in order to

make the federal land use fit better with the total livestock operation as long as these changes meet the objectives of the AMP. The AMP flexibility includes the following:

- Adjustment of the grazing system while complying with moderate (40-60%) utilization levels in the native pastures.
- Adjustment of the season of use by 30 days (60 days total); provided the total use for any single grazing year does not exceed more than 3,552 AUMs (15% increase over active permitted AUMs).
- Adjustment of stocking levels as forage is available, provided numbers do not exceed more than 115% of the active permitted AUMs or exceed total use of 3,552 AUMs in any given grazing season.
- Adjustments can be made by the operator without prior approval or notification to the BLM; however, all grazing use is documented on the annual Actual Grazing Use Report. All management adjustments should be made in the manner that will achieve the objectives for this allotment.

The following describes the sequence of use established in the current AMP for each pasture:

### **Seeded Pastures (I & II)**

Cattle are turned out into the crested wheatgrass seedings each year on about April 1, or as early as March 1, depending on range readiness. Cattle then remain on the seedings until the first of May or when heavy utilization levels are reached. Non-native – crested wheatgrass seedings were established because these grasses generally have the ability to withstand heavy utilization, and cattle use therefore deferred on native rangelands in the remainder of the allotment. Removal of cattle from the seeding around the first of May allows for regrowth on the crested wheatgrass, and other bunchgrasses. Cattle are then moved to one of the intermediate native pastures.

### **Intermediate Pastures (III & IV)**

One of these pastures should receive total rest each year. The other is used from approximately May 1 until moderate utilization levels are reached; usually between the end of May and middle of June. Cattle are then moved to the high pastures.

### **High Pastures (V & VI)**

Cattle enter one of these pastures between June 1 and June 15. The objective is to rest the other pasture. Cattle remain on the high pastures until the end of the grazing season (normally October 31) or when moderate utilization levels are reached.

### **Utility Pastures (VII, VIII, IX & X)**

Pastures VII, VIII and IX are predominately private and generally used in conjunction with the high pastures or as holding fields. Pasture X is a small pasture, centrally located that has traditionally been used as a utility pasture in support of gathers, fall holding, or used in conjunction with one or more adjacent pastures.

### **Current conditions on the allotment:**

#### **Seeding I**

This wheatgrass seeding was established about 40 years ago. Today some of the wheatgrass

plants are decadent with dead or dying centers. Due to the presence of Larkspur (poisonous to cattle during early spring growing season) the permittees use this pasture for only short durations in the spring. One pit reservoir in this pasture generally provides water early in the season. The southern half of the seeding known as the Larkspur Field has been fenced off due to an abundance of larkspur and receives no use by cattle. This isolated section of the pasture has a diverse population of vigorous perennial grasses including Great Basin wildrye, Indian ricegrass, Thurber's needlegrass, thickspike wheatgrass, bluegrass (*Poa* sp.) and crested wheatgrass.

### **Seeding II (Larkspur Seeding)**

The Larkspur Seeding was established in 1971. The current AMP allows for annual heavy utilization levels which have resulted in poor vigor on the native bunchgrasses in unseeded portions of this pasture. Sandberg's bluegrass is now the dominant native grass. However, there is a moderate amount of vigorous crested wheatgrass.

### **Pastures III and IV**

These pastures are comprised primarily of low sagebrush/bluegrass communities with increased juniper cover in some areas. Based on recent trend data, observations during rangeland health assessments and utilization monitoring, Sandberg's bluegrass and bottlebrush squirreltail have replaced Thurber's needlegrass and bluebunch wheatgrass as the dominant perennial grasses.

### **Pastures V and VI**

Pastures V and VI are in the upper elevations of the allotment. BLM staff field observations and the 2008 Rangeland Health Assessment indicate modest amounts of deep rooted perennial grasses including Thurber's needlegrass and bluebunch wheatgrass.

### **Pasture X**

A portion of Pasture X is fenced private land. The pasture is dominated by low sagebrush with healthy stands of deep rooted perennial grasses such as bluebunch wheatgrass and Thurber's needlegrass.

### **Pastures VII, VIII, IX**

These pastures are mostly private and generally used in conjunction with Pastures V and VI.

### **Range Improvements**

Range improvements include two wheatgrass seedings, pasture division fences and numerous pit reservoirs. There are no wells or improvements to public springs on the allotment.

### **Water distribution**

Pit reservoirs are well distributed throughout the allotment; some are often dry by late summer. Several springs exist on public and private lands; however none of the public springs have been developed. Other perennial water on the allotment includes unnamed drainages from Crooks Lake to Crooks Meadow; and from Crooks Meadow to Poison Creek. Poison Creek originates at Poison Springs and flows into Fee Reservoir. Crooks Lake and Fee Reservoir generally hold some water year-round and are used for agricultural purposes. In 2009 and 2010 Fee Reservoir was drained for downstream irrigation purposes.

Annual precipitation is variable, but generally averages less than 10 inches. The Barrel Springs Remote Automated Weather Station (RAWS) is located in northwestern Washoe County, Nevada, just north of the Crooks Lake Allotment at an elevation of 5,835 feet. Data from this weather station has been used to calculate a 15 year average of 9.38 inches of precipitation. The graph below (Figure 3.0) displays annual precipitation from 1995 to 2009.

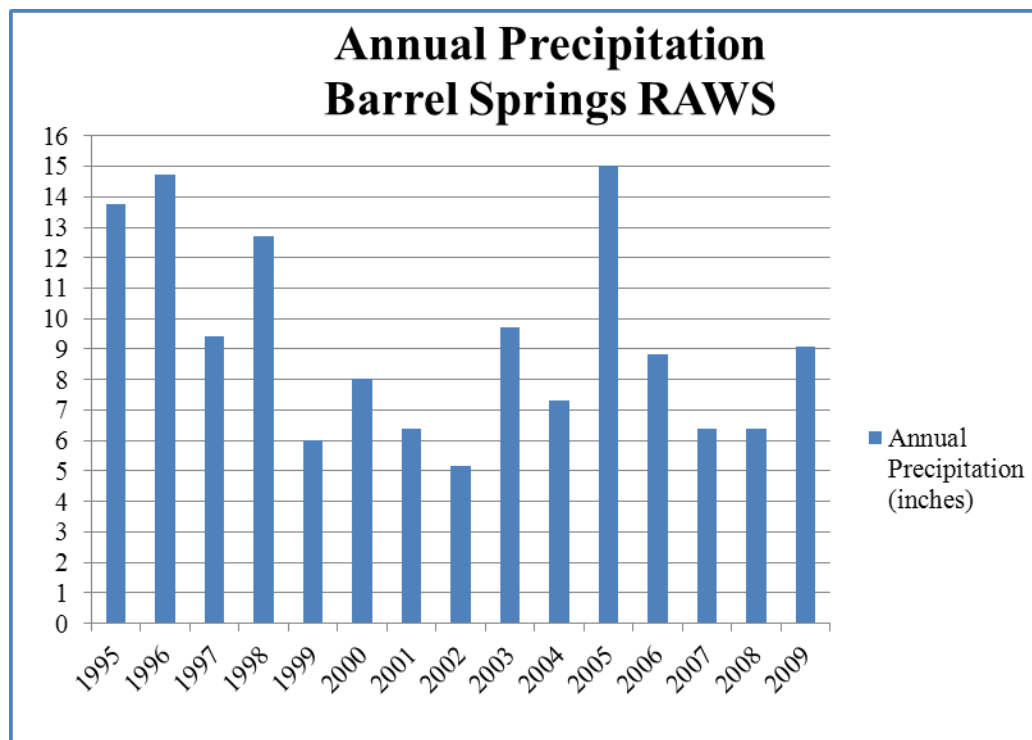


Figure 3.2.1 Annual Precipitation from Barrel Springs RAWS 1995-2009

#### Actual use

The level of livestock use that actually has occurred on the allotment is referred to as actual use. This use is reported in animal unit months (AUMs) and is based on Actual Grazing Use Reports submitted by permittees annually at the end of the grazing season. Table 3.2.1.1 below displays actual use from 1976 to 2009. Actual use on the allotment averaged 47% of active permitted use from 1984 to 2009; from 1976 to 1983 the average was 89% of active permitted use.

Table 3.2.1.1 Crooks Lake Allotment Actual Use History 1976 - 2009

(\*\* Includes some use in private pastures; exact amount not available)

CROOKS LAKE ALLOTMENT ACTUAL USE HISTORY											Actual Use AUMs	Permitted use - 3088 AUMs
PASTURE/AUMs						PRIVATE PASTURES						
YEAR	1	2	3	4	5	6	7	8	9	10	TOTAL	% of Permitted
2009	169		452		754						1375	45
2008	498			456		822					1776	58
2007	315		437	564							1316	43
2006	2739						✓		✓		2739**	--

CROOKS LAKE ALLOTMENT ACTUAL USE HISTORY											Actual Use AUMs	Permitted use - 3088 AUMs
PASTURE/AUMs						PRIVATE PASTURES						
YEAR	1	2	3	4	5	6	7	8	9	10	TOTAL	% of Permitted
2005	177	311	529		1310						2327	75
2004	657		263		962	445					2327	75
2003	16(H)	250	380		534	434					1598	52
2002	61	269	679								1009	33
2001	224		239			683					1146	37
2000	136	176	309	573		665				414	2273	74
1999		433	283	134	379	659					1888	61
1998	147	253	309	377	469						1555	50
1997	104	164	556		450	288					1562	51
1996	115	12	328	229		169					853	28
1995	95	371	235	347	362						1410	46
1994	87	103	229	89	953						1461	47
1993		206	130	526		611					1473	48
1992	15	764	578		682						2039	66
1991		✓	✓		✓			✓			1580**	--
1990	✓	✓				✓		✓	✓	✓	2337**	--
1989	✓	✓	✓	✓	✓						2407	78
1988	✓	✓	✓		✓		✓			✓	1415**	--
1987	✓	✓	✓	✓		✓			✓		1454**	--
1986	✓	✓	✓	✓							2561	83
1985	✓	✓	✓								2946	95
1984	✓	✓		✓							2734	88
1983	✓	✓		✓							3072	99
1982	No record of specific pasture use										2498	81
1981	No record of specific pasture use										3071	99
1980	No record of specific pasture use										3104	101
1979	No record of specific pasture use										2239	73
1978	No record of specific pasture use										2522	82
1977	No record of specific pasture use										2342	76
1976	No record of specific pasture use										3384	110

#### Monitoring:

##### Utilization Information

Use pattern maps have been completed for five of the last twenty years. Most of the moderate to heavy utilization recorded has occurred in the seedings and Pastures III and IV. Field notes indicate past heavy use also occurred on the private wet meadows and around Crooks Lake (refer to Map 3 in Appendix B).

#### Evaluation of 1985 -1989 Operator Flexibility Incentive Program (Summary)

This program was established through the Modoc/Washoe Experimental Stewardship Program. The following summary occurred in 1989, and provides an overview of the grazing use at that time and AMP flexibility implemented by the permittees during the 5 year evaluation period.

Season of use flexibility:

The permittees took the opportunity to adjust the turnout dates and the grazing system. Livestock numbers for the 5-year period were lower than the active permitted number. Turnout occurred as early as March 15 in the seedings and native Pastures III and IV.

Grazing system flexibility:

The grazing system was adjusted to have two consecutive years use in the north pastures (III & V) and one year of use in the south pastures (IV & VI) every third year.

The purpose of the two years of rest in the south pastures was that there were areas of little grass understory and low plant vigor.

Stocking level flexibility:

Stocking levels remained below the permitted active use for the 5-year period. Actual use was as low as half the permitted use for several years.

Precipitation:

Fort Bidwell, CA annual precipitation averaged 18.28 inches for the period 1983 to 1989, which is similar to the long term average. Fort Bidwell is west of the allotment on the east side of the Warner Mountains. This recording station was the closest information available at the time, but has higher precipitation levels than the allotment.

Utilization:

Very little utilization mapping was completed during the evaluation period. Available mapping data indicates the major use areas are the shores and lakebed of Crooks Lake (private) where utilization reached heavy levels (60-80%). Field observations indicated that wet meadows in the allotment received heavy utilization as well.

Conclusions:

The 1989 report concluded that the grazing system as operated with the expanded flexibility in number of livestock and period of grazing maintained the overall condition of the native range. Some areas showed a decrease in key species but could not be correlated to livestock management and the exact cause was not determined. Observations from the allotment indicated that most of the native range had fair to good vigor of bunchgrasses. Much of the native range had a good diversity of plants and several species of bunchgrass were found in most of the pastures. Grazing management in the two seedings seemed to provide adequate rest in Pasture II; however vigor on the crested wheatgrass was low in areas of Pasture I.

Livestock Management Consequences:

Impacts of Proposed Action:

Under the Proposed Action, the authorized season of use would be shortened by two weeks with scheduled turn-out on 4/15, instead of 4/1 as currently permitted. The permitted livestock take-off date of 10/31 would not change. The proposed grazing system, including the elimination of

AMP expanded flexibility provisions, resulting in a net reduction of 671 AUMs compared to the current grazing plan.

The pasture rotation is very similar to the current system except the season of use for each pasture would change annually. Use of pastures would rotate from the north on odd years to the south on even years. Livestock are accustomed to this rotation which is beneficial to the permittee to move and gather cattle between pastures. Term and Condition #10 would allow gates into adjacent pastures to be opened up to five days ahead of the planned pasture moves. This would allow some cattle to drift to the next scheduled pasture and facilitate gathering. Furthermore, with the elimination of expanded flexibility, permittees would be required to manage their livestock according to the grazing schedule and within the permitted season of use.

With the later season of use beginning June 1 in Seeding I, permittees would make better use of available forage when larkspur is no longer toxic to cattle. However, this forage would only be available for cattle on odd years of the rotation, since Seeding I would be scheduled for rest on even years.

Pasture VII is private and fenced and lies within the boundaries of Pasture X. Both pastures have generally been used late in the season every year as gathering fields. On even years of the proposed grazing system, Pasture X would be scheduled for use in June and would not be used as a gathering field. The Fee Ranch would still use Pasture VII in a manner that best suits their grazing operation since it is private and fenced.

Since much of the private land within the allotment is unfenced, the Proposed Action also adjusts percent public land. Pastures VIII and IX are mostly private and unfenced, and would now be managed and grazed according to terms and conditions in the Proposed Action.

Adjustment of the grazing schedule as the result of juniper reduction projects would have little to no effect on grazing management. The amount of riding, herding and gathering of cattle would remain virtually the same as under the proposed grazing rotation.

#### Impacts of Alternative 2:

Pasture moves are likely to be a challenge under this alternative. Currently, cattle are accustomed to drifting or being gathered and driven from the low to higher elevation pastures as the season progresses. The change in rotation from high to low elevations on certain years would require more riding/herding and gathering to move cows and keep them in the scheduled pasture. The proposed reductions would eliminate the permittees ability to utilize the AUMs historically available for their use.

#### Impacts of No Action (Current Management):

The No Action Alternative would maintain the current stocking rates and season of use. The existing permit would be re-issued under the same terms and conditions and the allotment would be managed under provisions of the 1982 Crooks Lake Allotment Management Plan (AMP) and Surprise RMP 2008. The permittee would continue his current livestock management practices; and therefore, there would be no impact to livestock grazing.

#### Impacts of No Grazing:

Under the No Grazing Alternative, no permit would be issued; the permit would be cancelled. As a result, the permittee would not be authorized to graze livestock on the Crooks Lake Allotment. The forage available to the permittees would either need to be replaced from private lands or by acquiring new grazing permits on public land.

### **3.2.2 Social and Economic Values**

#### Affected Environment:

The Surprise Valley is a rural community with a strong commitment to the tradition of cattle ranching which is the dominant element of the local economy. Many of the ranches have been in operation for several generations and rely on livestock sales for their income. Local agri-business derives income from related goods and services as well. Also state and local governments derive income from grazing permits through a Possessory Interest Tax. Federal permits to graze livestock on public land help provide an economic unit for an overall cattle operation for many ranchers in the West. The permits are linked to privately-owned base property and enhance the real estate value and productive capacity of private property by providing additional forage during certain seasons. This allows for rest, and production of hay or other forage on private property. A common practice among livestock operators in this region is to produce alfalfa or grass hay on irrigated pastures during the summer months when cattle are on public rangeland, then this hay is fed to cattle during the winter months.

#### Environmental Consequences:

##### Impacts of Proposed Action:

When the Proposed Action is compared to the No Action alternative the economic impacts to the permittees and community is expected to be slightly negative. The reduction in AUMs, and percent public land are offset somewhat because the changes allows the permittees to graze up to 464 cows instead of the current 435 head. The permittees will now receive credit for their unfenced private land in the allotment, but their active permitted AUMs will decrease by 7 percent. The AMP expanded flexibility provisions that allowed for up to 15 percent AUM annual increase and extended season of use without prior approval by the BLM are eliminated. The potential for increased livestock numbers could improve the operators' annual income, and a portion of this increase could benefit local agri-business. However, the permittees would feed their cattle on private lands two weeks longer than previously, because of the later turnout date; which would increase winter feeding costs. To ensure compliance with the grazing system, additional riding and herding would be required, which may also increase overall operational costs.

##### Impacts of Alternative 2:

The AUM reduction proposed in Alternative 2 would have a direct negative impact to the livestock operators and the local economy. The loss of almost half of their current public forage would require the operators to rent/lease private pasture, which is probably not available, and would require at least one the permittees to cut their herd size by 50 percent. This reduction in cattle numbers is probably not economically feasible for the permittees to maintain a viable ranching business. The actual negative impact to the permittees would be substantial, but economic impacts to the local economy from the loss of grazing use from the Crooks Lake

Allotment (individually) are uncertain, in part due to varying beef cattle prices, and values of livestock sales in the total agriculture economy.

#### Impacts of No Action (Current Management):

The No Action Alternative would have no change on social and economic values because livestock operations would continue without changes to authorized use.

#### Impacts of No Grazing:

Implementation of this alternative would have the greatest impact to the livestock permittees on the allotment. Loss of six ½ months of public forage land would require the permittees to rent/lease of private pasture which is probably not economically feasible to acquire and to maintain a viable ranching business. The availability other public land or private land pasture forage is unlikely in this area. The actual negative impact to the permittee would be substantial, but economic impacts to the local economy from the loss of grazing use from the Crooks Lake Allotment (individually) are uncertain given the relatively small amount of AUMs loss, in comparison with the field office area permitted use levels.

### 3.2.3 Soils

#### Affected Environment:

The soil classification for the Crooks Lake Allotment is contained in two soil surveys: the 1999 Soil Survey (#759) of Washoe County North Part; and the 2006 Soil Survey (#685) of Surprise Valley-Home Camp California and Nevada, which can be found at:

<http://soildatamart.nrcs.usda.gov/Manuscripts/CA685/0/SV-HC.pdf>

The majority of the vegetation of the Crooks Lake Allotment consists of several low sagebrush communities. The dominant soils that support low sagebrush on the allotment are: Ferver-Tunnison association; Devada-Bieber association; Ninemile-Madeline-Crocan association; and Tinpan-Ninemile association. These soils are generally shallow, cobbly to extremely cobbly or stony loam and have high clay contents throughout the soil layers. Consequently, these soils have very slow permeability and are likely to have surface runoff, particularly during high precipitation events.

Microbiotic Crusts of the soil surface community includes cyanobacteria, green algae, lichens, mosses, microfungi and other bacteria. Soils with these organisms are often referred to as cryptogamic soils and form what is known as biological crusts. The cyanobacteria and microfungi filaments aid in holding loose soil particles together forming a biological crust which stabilizes and protects soil surfaces. Bryophytes (mosses and liverworts) are the most prevalent in the allotment. The biological crusts benefit soils by increasing moisture retention, fixation of nitrogen, and may discourage the growth of annual weeds. Most biological crust organisms make their growth during cool moist conditions. In addition, soil crust occurrence is inversely related to vascular plant cover. The distribution, shape, and height of vascular plants can either increase or decrease soil crust or influence crust species and composition. Vascular vegetation reduces the amount of soil surface available for colonization.

Soil crust information is a component of the land health assessment process indicator # 8 Soil Surface resistant to erosion, the rating was none-slight departure.

#### Environmental Consequences:

##### Impacts of Proposed Action:

The Proposed Action is expected to have positive effects on upland soils. The proposed grazing system would provide rest and rotation for all pastures except the Seeding II and Pasture X, which would receive deferred use on odd years. Periods of rest would allow key forage species to complete growth cycles resulting in increased cover, litter and soil organic matter in the long term. Although the 2008 Rangeland Health Assessment determined that upland soils throughout the allotment were stable, there is still an opportunity for improvement of ecological condition in Pastures II, III and IV.

Impacts to soils under the Proposed Action are expected to be less than the No Action Alternative, since the turnout would be delayed at least 15 days on the seeding pastures, and consequently grazing use on the native pastures would also be delayed. These actions would reduce any potential livestock impacts on wet soils. The Proposed Action is expected to increase vegetative cover, litter and standing crop, and therefore reduce the potential for soil erosion. However, periodically heavy grazing use, trampling and soil compaction could continue adjacent to stockpiles that are scattered throughout the allotment.

Additional impacts (if any) to soils from the adjusted grazing schedule due to juniper projects would be negligible. Grazing Pastures III, IV or X for two consecutive years during the same time period each year, would not likely have adverse effects on soils in the long term.

Yearlong use by wild horses has offset any potential improvement of native bunchgrass improvement, which could have occurred as a result of reduced cattle grazing and implementation of the AMP. Prior to the 2009 gather, wild horse use was approximately equal to actual use by cattle. During the winter months, wild horse use likely occurs in pastures III & IV, would result in trampling impacts to soils when wet, and is a contributing factor to the static or downward vegetative conditions.

##### Impacts of Alternative 2:

Impacts to soils under this alternative depend on the year of pasture rotation. During the third and fourth years of the rotation, the higher elevation pastures (V, VIII & VI, IX) would be scheduled for use starting May 16. Soils in these upper elevation pastures receive slightly more precipitation, and are more likely to be wet from spring rain and snow and therefore more susceptible to impacts from livestock such as compaction during this period. The reduced cattle numbers are expected to offset soil impacts during most years. However, impacts to soils in the higher elevations would be greater over the long term than the current stocking levels or those in the Proposed Action.

##### Impacts of No Action (Current Management):

The 2008 Rangeland Health Assessment determined that soil standards were being met on the allotment, due in part to the grazing system which defers grazing use on the native pastures until mid-May. Cattle are turned out on the crested wheatgrass pastures where the soils are composed of coarse material and generally dry out quicker, and less likely to be impacted by cattle trampling. However, the Expanded Flexibility provision of the AMP, allows for grazing use as early as March 1, and as late as November 30, which has much higher probability that grazing

could occur when soils are saturated, and consequently increased impacts to soil structure and productivity over the long term.

The moderate utilization guidelines were established to provide for adequate litter and decrease the likelihood of trampling and compaction of soils. However, under the No Action Alternative, heavy utilization is expected to continue near pit reservoirs and Crooks Lake. Yearlong wild horse use has also contributed to heavy utilization in these areas.

#### Impacts of No Grazing:

In the short term, plant vigor and litter is expected to improve rapidly for several years, and would level off. Organic matter would increase but would not be incorporated into the soil as fast as the previous two alternatives. In the long term, plant vigor and litter could decline as the amount of standing dead litter is increased but is not being incorporated into the soil. There would be no disturbance to soil crusts from livestock grazing, however, wild horses would continue to impact soils, including biological crust and vegetation on and near riparian areas in the absence of cattle. Wild horse use would also cause trampling and compaction on riparian soils near watering sites.

### 3.2.4 Vegetation Including Special Status Plants

#### Affected Environment:

Crooks Lake Allotment is dominated by low sagebrush/bunchgrass communities; however mountain and Wyoming big sagebrush can be found in localized areas on deeper soils. Desirable native grass species present on the Crooks Lake Allotment consist of bluebunch wheatgrass, Thurber's needlegrass, Idaho fescue, bottlebrush squirreltail and Sandberg's bluegrass. Table 3.2.4.1 below displays the major vegetative communities by acreage and percent of allotment. Map 7 in Appendix B also illustrates vegetative communities on the allotment.

Most vegetative communities on the allotment are meeting rangeland health standards including riparian areas; however, Western and Utah juniper are steadily encroaching into areas normally occupied by grasses and shrubs. Projects to reduce the density of these invading junipers are planned within the allotment.

Table 3.2.4.1 Summary of Major Vegetative Communities in the Crooks Lake Allotment based on soils. **Note: Private lands are included in this table**

ACRES	PERCENT	COMMUNITY
22,830.69	52.13	Low sagebrushes, including early, Lahontan, and black sagebrush and rabbitbrush
6,143.27	14.04	Combination of low sagebrushes and bitterbrush
3,706.21	8.47	Combination of low sagebrushes and juniper
3,183.05	7.28	Seasonally wet, no salt influence
2,247.83	5.14	Wyoming big sagebrush
2,151.38	4.92	Mountain big sagebrush
1,784.69	4.08	Combination of big sagebrush and juniper
421.52	0.98	Combination of big sagebrush and mountain mahogany

ACRES	PERCENT	COMMUNITY
366.95	0.85	Unvegetated areas (rock, water, playa, etc)
296.99	0.69	Combination of silver sagebrush and low sagebrush
211.25	0.49	Combination of Wyoming big sagebrush and low sagebrush
173.47	0.43	Big sagebrush (including mountain, Wyoming, and basin)
148.31	0.36	Greasewood and saltbrush
48.39	0.14	Upland herbaceous, salt influenced
43,802.08	100.0	TOTAL SUM

### **Land Health Assessments**

The Rangeland (Land) Health Assessment Determination for Crooks Lake Allotment was completed in December 2008. Below is a brief summary of the upland health indicator ratings for the four assessment sites:

#### **SITE #1 Gravelly Claypan 10-12" P.Z.**

The site is located ¼ mile south of Little Mud Lake; 10 of the 17 rangeland health indicators were rated none to slight; three were rated slight to moderate; two were rated moderate; and two were rated moderate to extreme. Plant community composition and distribution relative to infiltration; and annual production due to the lack of herbaceous vegetation indicators rated as moderate departure. The moderate to extreme departures for functional/structural groups and litter amount were due to the lack of deep rooted perennial grass (Thurber's needlegrass) and herbaceous vegetation. Cheatgrass and Japanese brome were present in minor amounts.

#### **SITE #2 Claypan 10-14" P.Z.**

Site 2 is located ½ mile north of Klamath Reservoir in Pasture IV. Of the 17 rangeland health indicators, 11 were rated none to slight; two were rated slight to moderate; and four were rated moderate to extreme. Moderate to extreme departures for the indicators of plant community composition and distribution relative to infiltration, functional/structural groups, litter amount and annual production were due to the loss of deep rooted perennial grasses (Thurber's needlegrass and bluebunch wheatgrass). The site is dominated by low sage and Sandberg's bluegrass; cheatgrass was present in minimal amounts.

#### **SITE #3 Claypan 14-16" P.Z.**

Site 3 is located ¾ mile west of Bannock Reservoir in Pasture VI. Fourteen indicators rated none to slight and three indicators rated slight to moderate. The amount of deep rooted perennial grasses (Idaho fescue and bluebunch wheatgrass) was adequate but less than expected. Overall, this upland site has a diversity of forb and grass species and is meeting rangeland health standards.

#### **SITE #4 Claypan 14-16" P.Z.**

The site is located ~ ½ mile south of Kilby Flat Reservoir in Pasture V. Of the 17 indicators, 12 were rated none to slight; one was rated slight to moderate; one was rated moderate; and three were rated moderate to extreme. The moderate departure for plant community composition and distribution relative to infiltration was due to the lack of bluebunch wheatgrass and Idaho fescue. The moderate to extreme departures were for indicators: functional/structural groups, litter amount and annual production are due to the lack of deep rooted perennial grasses (Idaho fescue

and bluebunch wheatgrass); the site has a diversity of forbs and good composition of shrubs.

### **Trend Studies**

Fourteen 5X5 Photo Trend Plots were established on the allotment between the years 1969 and 1971. Plots are five feet by five feet and located in selected areas intended to be representative of the pasture. Data was gathered from the plots and photographs are taken periodically; then Apparent Trend is determined from field data and photos.

In 2009, data was collected and photos were taken at five of the 5X5 Photo Trend Plots. The trend sites re-evaluated in 2009 were located on the west side of the allotment. Two of the five sites showed an upward trend. Trend site 45 18 27 located near Crooks Meadow showed a slight upward trend based on increased litter and percent composition of the key species - Idaho fescue. At trend site 46 17 32 located in the unseeded portion of Pasture II, data indicated a slight upward trend based on increases in litter and percent live cover (sagebrush). The downward trends at the remaining three sites are primarily due to decreases in percent composition of key grass species. These downward trends support field observations and findings from the 2008 Rangeland Health Assessment indicating the loss of deep rooted perennial grasses such as Thurber's needlegrass, bluebunch wheatgrass and Idaho fescue on claypan sites in the western portion of the allotment. The downward trend in Seeding I is due to a very large decrease in percent composition of crested wheatgrass. Trend summary tables are located in Appendix A. Trend of sagebrush species (primarily low sage) was mixed; some sites had a downward trend and others had an upward trend.

Grazing use in 23 of the past 27 years in Pasture III (north) may be contributing to the downward trend and loss of deep-rooted perennial grass. Pasture IV (south) is currently in similar condition to Pasture III. The expanded flexibility provision allowed this grazing to occur; which may have prevented improvement in perennial grass cover.

### **Seedings**

Two seedings have been established in the Crooks Lake Allotment. In November 1961, due to the depletion of a native grass stand by an invasion of field mice, 280 acres were seeded to introduced Siberian wheatgrass (known as Seeding I). Currently, Seeding I is in fair condition; however many of the wheatgrass plants are decadent with dead or dying centers. In March 1971, 1,300 acres were seeded to introduced crested wheatgrass (Seeding II – Larkspur Hills Seeding). Seeding II generally receives moderate to heavy use each year; the native plant composition and vigor is low. The seeded portion of this pasture is in fair condition; however the native portion is in poor condition.

### **Wildfires & Prescribed Burns**

From 1952 to 2005, 16 small wildfires burned a total 7.5 acres on the allotment. In 1954, three larger fires totaling approximately 68 acres were documented; in 1972, approximately 160 acres burned in Seeding I; and in 2006, eight acres burned on private land within the allotment. There have been no prescribed burns on the allotment.

### **Fire Ecology**

Fire regimes represent an index of pre-settlement historical fire processes generated for the

period from around 1500 to just prior to the mid-1800s and are described in terms of frequency and severity. As shown in **Error! Reference source not found.**3.2.4.2, five fire regimes have been classified based on average number of years between fires combined with the severity of the fire on the dominant overstory vegetation.

Table 3.2.4.2— Fire Regime Groups:

Fire Regime	Frequency	Severity
1	0-35 Year Return Interval	Low
2	0-35 Year Return Interval	High
3	35-100+ Year Return Interval	Mixed
4	35-100+ Year Return Interval	High
5	200+ Year Return Interval	High

All areas within the Crooks Lake Allotment are classified within the Fire Regime Groups III, IV, and V with almost all areas (98.6%) within the 35-100 year fire return intervals. Mixed severity fires are expected on 66.1% of the allotment, and high severity fires 32.0% of the allotment.

**Condition classes** describe the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. This departure from historical conditions may result from several factors including fire exclusion, timber harvesting, grazing, introduction and establishment of exotic plant species, insects and disease (introduced or native), or other past and present management activities (USFS 2008).

Table 3.2.4.3 — Fire Regime Condition Class Descriptions:

	Fire Regime	Example Management Options
<b>Condition Class 1</b>	Fire regimes are within an historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.	Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.
<b>Condition Class 2</b>	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). These results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime.
<b>Condition Class 3</b>	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. These results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the historical fire regime.

Source: U.S. Forest Service General Technical Report RMRS-GTR-87

Fire Regime Condition Classes (FRCC) for vegetated portions of the Crooks Lake Allotment indicates 63.8 % is in Class 1, 24.1% is in Class 2 and 12.1% is in Class 3.

Western and Utah juniper are native species, but are invasive on certain ecological sites and is expanding throughout the allotment. Forest canopy cover data derived from satellite imagery indicate that approximately 9% of the allotment has juniper canopy cover exceeding 6%. On a pasture basis, the seeding pastures (I & II) have low juniper cover (<0.3%), the intermediate pastures have 8.1 to 10.5% canopy cover and the upper pastures have 10.5 to 12.1% canopy cover. Much of this juniper is associated with very rock sites near rim rocks and represents the historic juniper communities. Juniper is spreading into sagebrush sites (both big sagebrush and low sagebrush communities). When juniper canopy in these sagebrush sites is greater than 6%, herbaceous and shrub species begin to decrease in production, density and cover. At juniper cover greater than 20%, community successional threshold begin to be crossed with resulting loss of both herbaceous and shrub species. Various juniper reduction treatments utilizing combinations of cutting, prescribed fire, and thinning are being considered in the allotment.

Juniper cover and FRCC are closely related. Areas with high juniper cover (>30%) are much more likely to be in FRCC III than Classes I or II. Conversely, areas with low juniper cover (<6%) are almost exclusively in FRCC I.

### **Threatened or Endangered Plant Species, Sensitive Species**

There are no known BLM listed sensitive plant species found on the Crooks Lakes Allotment; therefore they will not be discussed further in this document.

#### **Environmental Consequences:**

##### **Impacts of Proposed Action:**

Many of the wheatgrass plants in Seeding I are displaying low vigor with dead or dying centers. The short duration - intensive grazing and rest in this pasture under the Proposed Action would be expected to stimulate tiller growth and remove standing dead litter from wheatgrass, improving vigor.

Seeding II would be grazed annually from 4/15 to 5/15. The later turn-out would provide seeded and native grasses an additional two weeks of spring growth before being grazed by livestock. This additional spring growth could improve vigor of seeded and native grass species. However, with the later turn-out, on dry year's soil moisture may not be adequate to provide for regrowth and seed production of crested wheatgrass as well as natives. Overall conditions of this pasture, including the native portion, would likely remain static with a possible slight upward trend.

Although permitted cattle numbers would increase by 29 head, authorized use in Pastures III and IV would be reduced from 659 AUMs to 354 and 449 AUMs respectively. Cover and vigor of perennial grass species should increase and overall improvement in ecological condition is expected.

Cover and vigor of perennial grass species would increase and overall improvement in ecological condition is expected for the higher elevation pastures (V, VI, VIII and IX) due to the rest/rotation and shortened season of use.

##### **Impacts of Alternative 2:**

Impacts to vegetation from this alternative would vary depending on pasture.

Unlike the proposed action, under this alternative both seedings (Pastures I & II) would be grazed annually from 4/15 to 5/15, however with fewer cattle in Pasture II. Pasture I would be grazed by the same number of cattle as in the proposed action; yet it would not receive rest that is needed to improve the vigor of seeded and native perennial grass species. Later turnout could benefit both seeded and native species by providing two additional weeks of spring growth prior to grazing. However, with the later turn-out, on dry year's soil moisture may not be adequate to provide for regrowth and seed production.

Intermediate pastures (III & IV) would receive early season use (before July 1) once during the four year rotation cycle. This would allow most perennial grass species three consecutive years of not being grazed by livestock during the critical growth period; perennial grass species would

complete life cycles and produce seed before being grazed by livestock. These pastures would see an increase in cover and composition of perennial grass as a result of the reduced stocking rate and four year rest/rotation.

Impacts to vegetation in the higher elevation pastures (V, VI, VIII and IX) would be much less than that of the proposed action due to the reduced stocking levels. Each of these pastures would receive one year of rest and only one year of grazing use during the growing season for the four-year rotation cycle. Two years of the rest/rotation grazing would be scheduled after July 1 allowing key perennial grass species to complete growth cycles. With reduced cattle numbers and utilization levels, perennial grasses should see improvements in vigor, composition and cover.

#### Impacts of No Action (Current Management):

The 2008 Rangeland Health Assessment found moderate to extreme departures that are directly related to the loss of the key deep rooted bunchgrasses Thurber's needlegrass, Idaho fescue and bluebunch wheatgrass. The loss of these key grasses likely began prior to 1970, before the implementation of the original Crooks Lake Allotment Management Plan. Apparent trend information indicates that composition of deep – rooted perennial grasses on the west side of the allotment are in a static or slightly downward trend partially due to the Expanded Flexibility provision in the AMP.

Under this action, the current management practices would continue and the downward trend in Pastures III and IV would persist. Scheduled use in these pastures results in 659 AUMs being harvested during the critical growth period for deep-rooted perennial grasses. Composition of these grasses could decline further. In contrast, the Proposed Action would authorize 449 AUMs to be harvested during the critical growth period in Pasture IV on even years (rest on odd years); and 354 AUMs in Pasture III on odd years (rest on even years) during the same time period.

Composition of deep-rooted perennial grasses in the higher elevation pastures (including unfenced private) would be expected to remain unchanged under this alternative.

Conditions in both seedings would likely remain unchanged under this alternative.

#### Impacts of No Grazing:

Upland vegetation conditions are expected to improve in the short term under the No Grazing Alternative. In the long term, plant vigor and litter would decline as the amount of standing dead litter is increased but is not being incorporated into the soil. Riparian vegetation would continue to receive year-round impacts from wild horses if they are not removed from the allotment.

### **3.2.5 Wilderness/Lands with Wilderness Characteristics**

#### Affected Environment:

All BLM lands, including those in the project area, were inventoried for wilderness characteristics in 1979 as directed under the Federal Land Policy and Management Act of 1976 (FLPMA). Under section 603 of FLPMA, lands found to have wilderness characteristics in the original 1979 inventory were designated as either Wilderness Areas (WAs) or Wilderness Study Areas (WSAs). Under a 2003 settlement agreement between the Department of Interior and

State of Utah, the BLM agreed that it has no authority to establish new WSAs. However, under section 201 of FLPMA, the BLM is required to maintain current inventories of all public land resources, including wilderness characteristics. The wilderness characteristics inventory for lands within the project area was updated in 2009 as required under section 201 of FLPMA.

Wilderness characteristics are assessed using several screening criteria. Listed in order, they include; size, natural condition, outstanding opportunities for solitude or for primitive and unconfined recreation, and special or supplemental values (not required).

**Size** – To be sufficient size to have wilderness characteristics, an inventory unit is generally at least 5,000 contiguous road less acres of public land where the imprint of human activity is substantially unnoticeable. In certain cases, a unit may be less than 5,000 contiguous acres if one of the following factors is present:

- It is clearly of sufficient size to make practicable its preservation and use in an unimpaired condition.
- It is contiguous with a BLM WSA and is not separated from the WSA by a road, right-of-way, or non-federal land.
- It is contiguous with land managed by another federal agency that has been formally determined to have wilderness or potential wilderness characteristics.

**Natural Conditions** –The area within the unit boundary must appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable. Some imprints of human activity may exist in the area if they are substantially unnoticeable. More consideration is given to “apparent naturalness” rather than “natural integrity.” “Apparent naturalness” refers to whether or not an area appears to be in a natural condition to the average visitor who is not familiar with the biological composition of natural ecosystem versus human-affected ecosystems in a given area. Major influences on apparent naturalness are structures, evidence of significant past vegetative disturbance such as logging, and other obvious surface-disturbing activities. “Natural integrity” refers to the presence or absence of ecosystems that are relatively unaffected by human activity, such as the presence of native vegetative communities and absence of invasive species.

**Outstanding Opportunities for Solitude** – “Solitude” is defined as the state of being alone or remote from others; isolation; a lonely or secluded place. “Outstanding” is defined as standing out among others of its kind; conspicuous; prominent; superior to others of its kind; distinguished; excellent. This criterion considers an individual’s opportunity to avoid sights, sounds, and evidence of other people in the unit. Factors that affect opportunities for solitude are the size and configuration of the unit; vegetative and topographic screening; ability of visitors to find a secluded spot, even when others are present in the area. Do not consider the sights and sounds of human activity outside of the unit’s boundaries unless they are so extremely imposing that they cannot be ignored.

**Outstanding Opportunities for Primitive and Unconfined Recreation** – Primitive and unconfined recreation includes activities that provide dispersed, undeveloped recreation which do not require facilities or motorized equipment. Some examples include but are not limited to hiking, backpacking, fishing, hunting, caving, horseback riding, rock climbing, river running, cross-country skiing and bird watching. An area may possess outstanding opportunities for

primitive and unconfined recreational activities possible in the unit, or the outstanding quality of one opportunity.

Supplemental values are also considered in the wilderness inventory, however only if the other criteria has been met. Supplemental values are ecological, geological, or other features of scientific, educational, scenic, or historic value that may be present. If present, a description of these values is included in the inventory. The description should include a discussion of the relative quantity and quality of these values including anthropological, rare, and endangered species, and heritage.

The Surprise Field Office wilderness inventory was conducted in 1979 and 1980 in accordance with BLM's Wilderness Study Policy: Policies, Criteria and Guidelines for Conducting Wilderness Studies on Public Lands (47 CFR 5098-5122). This inventory identified four Wilderness Inventory Units (CA-020-906, CA-020-1006, CA-020-1006b, and CA-020-1007) that the Crooks Lake Allotment included part of (see Map 7 Appendix B). These units were all found not to have wilderness character. These units were re-inventoried in 2009 (see Map 8 Appendix B) as one unit (CA-NO-07-003) by the Surprise Field Office which concluded that the area, or a portion of the area, has the following wilderness character: (1) is of sufficient size, (2) is in a natural condition, (3) has outstanding opportunities for solitude, (4) has outstanding opportunities for primitive and unconfined recreation, (5) has supplemental values – important habitat areas for BLM sensitive species, locally important big game, and archaeological resources.

#### Environmental Consequences:

##### Impacts of Proposed Action:

The Proposed Action would not impact the size of the area that has wilderness characteristics. The natural condition would be expected to improve as the vegetation shifted towards deep rooted native grass dominance. Although this will not change apparent naturalness to the casual visitor, it will through time increase the natural condition. There are no developments planned within the CA-NO-07-003 wilderness inventory unit, so there would be no impacts to the natural condition of the area from development. Outstanding opportunities for solitude would be the same as they are currently. Motorized traffic on existing roads by recreationists, ranchers and others may occasionally intrude on outstanding opportunities for solitude. Recreation-related traffic in the area would remain constant regardless of alternative. Rancher-related motorized traffic would remain fairly constant through all alternatives (except No Grazing). Opportunities for unconfined and primitive recreation would not be expected to change under the Proposed Action.

##### Impacts of Alternative 2:

Impacts on wilderness characteristics would be the same under this alternative as under the Proposed Action.

##### Impacts of No Action (Current Management):

Impacts on wilderness characteristics would be the same under this alternative as under the Proposed Action.

#### Impacts of No Grazing:

Natural conditions are expected to improve at a faster rate than under the other alternatives. This is due not only to changes in some grass species, but existing stock ponds may also eventually become abandoned, and re-established with vegetation; however reduced water sources would have a negative effect on large wildlife species populations. Other vegetative changes such as encroachment of western juniper onto important wildlife habitat could continue without the planned removal projects. Existing roads will continue to be used by recreationists and private land owners. There would not be a notable change in outstanding opportunities for solitude under this alternative. Opportunities for unconfined and primitive recreation are not expected to change.

#### **3.2.6 Wild Horse & Burros**

##### Affected Environment:

The Crooks Lake Allotment is not within a wild horse Herd Management Area (HMA) and therefore wild horses population in the allotment should be zero. However, in September 2009, 100 horses were rounded up from within the allotment, and estimated 25 - 35 wild horses still remain within the allotment at that time. These wild horses drifted into the allotment from the adjacent Carter Reservoir HMA, and the population has been increasing in recent years. The most recent aerial population inventory completed in June 2010 indicated the minimum population of 30 wild horses are in the allotment and use the allotment yearlong. Approximately 80 head are adjacent to the allotment, and some of these horses also seasonally use the allotment. Seasonal use occurs mostly during the summer months, some horses probably move off the allotment to lower elevations during the winter months or during periods of deep snow cover. Wild horse movements in and out of the allotment has come about because boundary fences are in disrepair, gates are sometimes left open and other sections of boundary uses natural boundaries that wild horses can walk around.

##### Environmental Consequences:

For this analysis it is assumed that during the next 10 years there will be approximately 15-70 wild horses within the Crooks Lake Allotment consuming 180-840 AUMs.

##### Impacts of Proposed Action:

The continued presence of wild horses primarily in pastures IV, V and VI would partially offset potential bunchgrass improvements as result of the implement of the Proposed Action, since wild horse use would occur in pastures scheduled for rest or deferment.

There are no new fences proposed that could affect wild horse movements, and maintenance of existing fences would continue. Gates to existing pastures would be closed and opened based on the period of use, which could affect wild horse movement at certain times of years. When livestock are not authorized on the allotment, all the internal gates are generally left open to allow for the movement during periods of deep snow.

##### Impacts of Alternative 2:

Alternative 2 would expect to have similar impacts to wild horses as the Proposed Action, since new projects such as fences are not proposed, and the change in grazing schedule is not expected to affect seasonal wild horse movement. The reduced stocking rate would not likely have a

noticeable impact on wild horses.

**Impacts of No Action:**

The No Action alternative is expected to have slight negative effects. Prior to the 2009 gather, wild horse use was approximately 1,560 AUMs. This use by wild horses has offset any potential improvement of native bunchgrass improvement, which could have occurred as a result of reduced cattle grazing and implementation of the AMP. During the winter months, wild horse use likely occurs in pastures III & IV, would results in trampling impacts to soils when wet, and is a contributing to the static or downward vegetative conditions.

**Impacts of No Grazing:**

Implementation of the No Grazing Alternative may benefit the wild horse population by eliminating livestock competition for forage. The lack of competition from livestock is expected to result in higher annual population increases. If wild horses are not removed from the allotment, there would no longer be competition for forage with livestock and wild horse numbers would likely increase.

### **3.2.7 Wildlife Resources including Migratory Birds and Threatened and Endangered Species**

**Affected Environment:**

There are no federally listed or proposed for listing species, which are known to use the allotment. Two species have been designated as candidates for listing under the provisions of the Endangered Species Act by the USFWS.

*Carson Wandering Skipper:*

Although some saltgrass (approximately 48 acres) is found in the Crooks Lake Allotment, habitat within the allotment does not appear to be suitable for Carson wandering skipper due to lack of nectar sources and little saltgrass habitat areas. Field visits in 2008 and 2010 did not note any nectar sources and no Carson wandering skippers were located. Carson wandering skipper surveys have been completed in other allotments throughout the Surprise Field Office and no Carson wandering skippers have been identified in any allotment, therefore this species will not be discussed further in the EA.

Table 3.1.6.1- Potential Carson Wandering Skipper Habitat\*

ACRES	PERCENT	COMMUNITY
48.39	0.14	Upland herbaceous, salt influenced
<b>48.39</b>	<b>0.14</b>	<b>TOTAL SUM</b>

\*based on GIS soil and vegetation mapping

*Greater sage-grouse:* In March 2010, the USFWS announced its listing decision for the Greater sage-grouse (*Centrocercus urophasianus*) as “warranted but precluded”. Candidate species designation means the USFWS has sufficient information on biological vulnerability and

threat(s) to support issuance of a proposed rule to list, but issuance is precluded by higher priority listing actions. At this time the species is officially considered a Candidate Species, but does not receive statutory protection under the Endangered Species Act (ESA). Individual states continue to be responsible for managing sage-grouse. “Candidate species and their habitats are managed as Bureau sensitive species”, (BLM Manual 6840, December 2008). The Greater sage-grouse is discussed below.

On BLM lands of the Surprise Field Office, historic and active Greater sage-grouse (*Centrocercus urophasianus*) strutting grounds known as “leks” are located primarily in open, low sagebrush habitats. Leks are areas where males display for breeding females. Early work estimated that most females nested within 2 miles of leks; however recent studies indicate that females may nest up to 3.2 miles away. At least one female radio collared on the Surprise Field Office successfully nested 9 miles from the lek she was captured on. Although many nests have been found in lower quality habitats, these are almost always unsuccessful due to nest abandonment and predation. Sage-grouse nest on the ground, most often under taller sagebrush cover (15-38% shrub canopy; 36 -79 cm shrub height) such as the “big” sagebrush types and Wyoming sagebrush. Successful nesting habitat contains taller grass cover (>18 cm or 7 in) in association with this sagebrush. Sage-grouse utilize sagebrush stands as both winter and nesting habitat. Sage-grouse feed on sagebrush buds and flowers throughout much of year, especially early spring through fall. Peak egg-laying and incubation varies from late March through mid-June, with re-nesting stretching into early July. Brood-rearing habitats are wet meadow and riparian areas where the young can find abundant insects which are critical to their diets during the first few weeks of life. Estimated summer home range is 2.5 – 7 km<sup>2</sup> (618-1,730 ac). Insects constitute a portion of the diet for adult sage-grouse in spring and summer with insects making up the bulk of the diet for sage-grouse chicks in the first few weeks of life. Forbs are important food sources for brood rearing and pre-nesting hens.

During field visits to the allotment, sage-grouse sign was found around some riparian areas and upland sites indicating use of these areas. Within the Crooks Lake Allotment there are two known lek locations; the Fee Reservoir lek is a moderate sized lek in Pasture III consisting of approximately 30-60 birds; the Little Mud Lake lek is a small lek in Pasture IV consisting of approximately 5-10 birds. Sage-grouse populations also exist within surrounding allotments. (See Tables 3.4 & 3.5 below for lek trends and for trend of the adjacent Big Mud Lake Complex). Based on vegetation and the known location of active leks, Pastures I, II and III have the greatest potential to support sage-grouse nesting in the Crooks Lake Allotment. Pasture IV can support nesting sage-grouse also based on vegetation and proximity to lek locations. Analysis of soils information and aerial photography indicates that approximately 50% of the allotment has some degree of juniper encroachment. However, soils information indicates that the allotment should only support about 13% juniper coverage. On the east side of the allotment juniper encroachment has reduced the quality of some potential sage-grouse habitat that could be used for nesting, brood rearing and summer habitat. Juniper woodlands do provide a benefit for large mammals such as mule deer that use juniper for thermal and hiding cover. Juniper also benefits cavity nesting and tree nesting birds which use juniper woodlands for nest sites. Pastures VI and X have potential sage-grouse summer and winter habitat and are likely used by sage-grouse on occasion although there are no known large populations within these pastures. Pastures VII, VIII, and IX are private pastures.

High and low population trends are similar annually to the adjacent Sheldon National Wildlife Refuge (NWR). Consistent counts of bird attendance at leks have only occurred since 2002 on the Surprise Field Office and since about 1990 for the Sheldon National Wildlife Refuge. Survey numbers show that sage-grouse populations peaked between 2004-2007 for both the Surprise Field Office and the Sheldon NWR. The two leks in the Crooks Lake Allotment are tracked within the Vya Population Management Unit (PMU). Fee Reservoir is tracked within the Fee Reservoir complex with the Fee Reservoir lek being the only lek within the complex. The Little Mud Lake lek is tracked within the Little Mud Lake complex with the Little Mud Lake lek being the only lek within the complex. The Bald Mountain complex on NWR is tracked within the Sheldon PMU. Lek count numbers generally declined on both the Surprise Field Office and the Sheldon NWR in 2008, and then increased in following years. Data from 2009 indicates that both the Sheldon and Vya PMU chick/hen ratios are above the estimated ratio of 2.25 chicks/hen needed to sustain or increase population numbers in those PMU's. The 2009 data for the Massacre PMU was 2.16, slightly below the estimated needed ratio; the Washoe County ratio was 2.54 in 2009.

Table 3.1.6.2 Lek trends within the Crooks Lake Allotment, Fee Reservoir and Little Mud Lake leks. (NC= No count for that year)

<b>Crooks Lake Allotment Leks</b>	<b>PMU</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Fee Reservoir	Vya	NC	61	40	33	34	29	40	55
Little Mud Lake	Vya	NC	05	05	07	NC	4	0	07

Table 3.1.6.3 Lek counts by year for the Bald Mountain lek. "NC" = No count for that year. Seven other leks in this complex are no longer counted due to low numbers or inactivity.

<b>Sheldon NWR Lek</b>	<b>PMU</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Bald Mountain	Sheldon	161	210	149	113	35	52	34	34

### **BLM Special Status Species: Pygmy Rabbit, California Bighorn Sheep, and Golden Eagle**

#### **Pygmy Rabbit:**

The 2006 Larrucea survey did not detect pygmy rabbit (*Brachylagus idahoensis*) in the Crooks Lake Allotment (Larrucea, 2006). Pygmy rabbit are dependent on sagebrush, primarily big sagebrush (*Artemisia tridentata*) located in deeper soils. Soil types where burrows are found can be loamy to ashy and burrows are generally found greater than 72 cm (20 in) deep. In Oregon, overall shrub cover at pygmy rabbit sites averaged 28.8% and ranged from 21.0-36.2%. According to the species field report for the Ruby Pipeline, 60.0 percent of sites in Nevada exhibited 26–50 percent canopy cover. Larrucea and Brussard (2008) surveyed the historic range of pygmy rabbits in Nevada and California, and found a greater probability of occupancy by pygmy rabbits at sites with low (or no) understory. Pygmy rabbit burrows are almost always under big sagebrush and only rarely in the open. In the Crooks Lake Allotment there are few areas that

have the combination of soils and vegetation that have previously been identified as suitable habitat for pygmy rabbits. Subsequent field visits by the BLM after the 2006 Larrucea survey did not detect pygmy rabbits in the Crooks Lake Allotment. The 2006 Larrucea survey identified the closest known pygmy rabbit location approximately 8.5 miles east of the Crooks Lake Allotment. No pygmy rabbit populations have been identified within the California side of the Surprise Field Office (Surprise Field Office files). The 2006 Larrucea survey also did not detect any pygmy rabbits in Mosquito Valley Allotment which lies adjacent and to the east of Crooks Lake Allotment. Adjacent allotments also lack large areas of loamy soils and big sagebrush that typify pygmy rabbit habitat. Table 3.2.7.1 provides an estimate of acres within the Crooks Lake Allotment where pygmy rabbits could be located based on soils. Due to a small percentage of suitable habitat and no known populations within the allotment or adjacent allotments after surveys and field visits, this species will not be discussed further.

Table 3.2.7.1 Potential pygmy rabbit habitat within the Crooks Lake Allotment. Note: Private lands not removed in this table; however private lands account for 16.3 percent of the allotment.

ACRES	Percent of Allotment	Potential pygmy rabbit habitat based on soils and vegetation
173.47	0.4	Big sagebrush spp. (including mountain, Wyoming, and basin)
2,151.38	4.9	Mountain big sagebrush
<b>2,324.85</b>	<b>5.3</b>	<b>Total of potential habitat in allotment</b>

#### **California Bighorn Sheep:**

Data from the Nevada Department of Wildlife (NDOW) indicates that a small portion of public land in the eastern half of the allotment lies within the distribution of California bighorn sheep (*Ovis canadensis californiana*) habitat. This area constitutes less than 5% of the allotment. Much of the allotment lacks the suitable characteristics of California bighorn sheep habitat, most importantly, steep rocky terrain for escape cover. Habitat for bighorn includes steep rocky terrain for escape cover and bedding opportunities adjacent to open vegetation for foraging and water. Due to predation issues, high quality bighorn sheep habitat (steep areas) generally has water within ¼ mile. This species can be found in diverse habitats including big and low sagebrush, juniper woodland edges, perennial grasslands and bitterbrush. Although woodland areas can be used, this species prefers low growing vegetation in order to better spot predators

#### **Golden Eagles:**

Golden eagles, a BLM sensitive species, regularly forage in the allotment and locally utilize cliffs for nesting. An early study from central California showed that mammals made up 77 percent of golden eagle diets (specifically ground squirrels, jackrabbits, and black-tailed deer fawns), although there was also an assortment of birds (including turkey vulture), snakes, and a few fish (Carnie 1954). There have been two known nesting areas in the allotment; one site was found to be inactive in 2002 and has not been revisited. A second site was visited in 2002 and was found active with a single chick.

**Migratory Birds:**

Migratory birds are protected and managed under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et. seq.*) and Executive Order 13186. Under the MBTA nests (nests with eggs or young) of migratory birds may not be harmed, nor may migratory birds be killed. Executive Order 13186 directs federal agencies to promote the conservation of migratory bird populations.

Most of the vegetation communities on the Crooks Lake Allotment are characterized by juniper woodlands and/or sagebrush species. Most of these species require a diversity of plant structure and herbaceous understory. High levels of plant species diversity provides habitat for nesting, foraging and cover for a variety of species. Woodland species such as juniper offer nesting and foraging opportunities for many of these species. Riparian areas and riparian areas with a woody riparian plant species component are important habitats for some migratory bird species as they provide important foraging and nesting habitats. Riparian areas also serve as important transition habitats for a variety of species between seasons and are often heavily used during summer months. Habitat components for many of these species are available in small habitat patches throughout the allotment. Migratory birds associated with these vegetative communities may include:

- black-throated sparrow (*Amphispiza bilineata*),
- Brewer's blackbird (*Euphagus cyanocephalus*),
- Brewer's sparrow (*Spizella breweri*),
- Canyon wren (*Catherpes mexicanus*),
- gray flycatcher (*Empidonax wrightii*),
- green-tailed towhee (*Pipilo chlorurus*),
- loggerhead shrike (*Lanius ludovicianus*),
- rock wren (*Salpinctes obsoletus*),
- sage sparrow (*Amphispiza belli*),
- sage thrasher (*Oreoscoptes montanus*),
- western meadowlark (*Sturnella neglecta*), and
- vesper sparrow (*Pooecetes gramineus*).

Migratory birds frequently use large reservoirs within the Crooks Lake Allotment, specifically Fee Reservoir and Crooks Lake (Note: BLM does not possess the water rights for these two bodies of water). Species that are often observed within the allotment include Canada geese (*Branta canadensis*), mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), American widgeon (*Anas americana*), common goldeneye (*Bucephala clangula*) and other migratory birds commonly seen in wetland-marsh environments. Crooks Lake is unfenced private land and not managed by the BLM.

**Large Native Ungulates:**

Pronghorn antelope (*Antilocapra americana*), or pronghorn, can be found throughout the allotment yearlong and are known to kid in open expanses near playa lakes within the allotment (office data). Most of the Crooks Lake Allotment is occupied pronghorn antelope habitat. Areas on the east side of the allotment where it becomes steeper and has denser stands of western juniper are less frequently used. Pronghorn prefer open rangelands that support a variety of vegetative types. Predation issues are generally considered to be the factor why pronghorn are not typically found in

heavier cover types. Areas with low shrubs typify summer habitat with a diversity of native grasses and forbs (Gregg et. al. 2001). Vegetative heights where pronghorn are found can vary; however 10-18 inches has been reported for pronghorn in grassland and shrub steppe communities (Yoakum 2004). Pronghorn do not appear to be dependent on open water, if there is sufficient moisture in the vegetation (Reynolds 1984, O’Gara 1978). Although forbs are an important component of the diet, browse is the dominant food ingested (Pyshora 1977). Like all big game species, forbs are preferred forage and contribute a high amount of protein and minerals to the diet of pronghorn antelope. Pronghorn benefit from succulent vegetation associated with meadows during the summer months.

Mule deer (*Odocoileus hemionus*) use occurs throughout the year in the Crooks Lake Allotment. Areas of the allotment where the vegetation consists primarily of low sagebrush and associated grasses and forbs are generally avoided because of the lack of hiding cover (i.e. big sagebrush spp.) and thermal cover. Within the Crooks Lake Allotment there are interconnected expanses of heavier shrub cover and tree cover that are seasonally used by mule deer. Areas within the allotment where a mixture of Wyoming, mountain, and big sagebrush exist are typically the areas where mule deer use is concentrated, with most mule deer seeking higher elevation areas in the summer months. To aid in thermoregulation, deer utilize various topographic aspects, south in the winter and north in the summer. Heavy shrub and tree cover also aids in thermoregulation. Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet. Grasses are generally only consumed early in the spring when they are still green and higher in total digestible nutrients. The diet of mule deer is quite varied and the importance of various classes of forage plants varies by season; however sagebrush and bitterbrush are important components throughout the year.

The Crooks Lake Allotment is divided by both NDOW hunt unit 011 and California Department of Fish and Game (CDFG) hunt unit X3B, with the majority of the Crooks Lake Allotment situated in Nevada. NDOW and CDFG collect data based on hunt units and not on an allotment basis and often report pooled information for big game from several units together. Mule deer data (see link below) for units 011-015 indicate that mule deer numbers vary from trending down to slightly increasing for the various mule deer populations in northwestern Nevada. The adjacent unit 033, the Sheldon Refuge, is also experiencing continued low recruitment levels. Pronghorn populations in hunt units 011 and 015 are expected to continue increasing trends while those populations within hunt units 012, 013, and 014 are expected to remain static. According to NDOW, big game animals are experiencing declines due to drought conditions and the subsequent effects on vegetation and competition with wild horses in some areas. Despite the effects of drought, hunt unit 012 shows a slight upward trend in bighorn sheep numbers. NDOW does not track bighorn in unit 011. More information is available at: <http://www.ndow.org/about/pubs/index.shtm#general>

Rocky Mountain Elk (*Cervus elaphus*) may occasionally drift into the Crooks Lake Allotment from the nearby Warner Mountains. The Crooks Lake Allotment and nearby surrounding allotments have the characteristics of elk habitat; however there has been no resident population or documented elk sighting within the Crooks Lake Allotment. Seasonal habitats in Modoc County and the nearby Warner Mountains that have occupied elk habitat coupled with migratory patterns and behavioral habitats of elk make it unlikely that they will use the allotment for long periods of time; therefore elk will not be discussed further in this EA.

**Other Non-Game Species:**

Other species known to occupy the allotment include black-tailed jackrabbit, ground squirrel, badger, lizards, coyote, raven, northern harrier and various songbirds. Data points from survey blocks conducted by the Great Basin Bird Observatory on similar comparable habitats indicate that several sage-steppe obligate birds besides Greater sage-grouse are likely found within the Crooks Lake Allotment including Brewer's sparrow, sage thrasher, and sage sparrow. These birds require a mix of open, patchy sagebrush, tall sagebrush, and grass cover for nesting and foraging. Active rodent burrows and ant hills were found during 2010 field tours.

In 2007, rainbow trout and speckled dace were identified within Poison Creek during riparian assessments. Fee Reservoir is stocked with rainbow trout and it is likely that there is some migration of fish from the reservoir into Poison Creek. Fee Reservoir has no minimum pool requirement and the BLM does not possess the water rights to the reservoir. As a result, during prolonged drought periods it often dries up or becomes uninhabitable for cold water trout species. Poison Creek has sections of perennial water at surface discharge points. In the perennial sections of Poison Creek there is adequate water volume and stream shading to support rainbow trout and speckled dace.

**Mosquitoes and West Nile Virus:**

West Nile virus is known to exist in both Washoe and Modoc Counties; however, there have been few confirmed cases and no measurable impacts to native wildlife within the Surprise Field Office boundaries. Although mosquitoes exist throughout the field office area, the distance between water sources appears to aid in reducing mosquito populations and most large concentrations of mosquitoes generally only occur in larger riparian areas. The recent Federal Register publication pertaining to sage-grouse states "...a complex set of environmental and biotic conditions that support the West Nile virus cycle must coincide for an outbreak to occur. Currently the annual patchy distribution of the disease is keeping the impacts at a minimum" (Federal Register 2010, at page 13970). More information on West Nile Virus in Modoc and Washoe county is available at: <http://www.westnile.ca.gov/> and at <http://www.co.washoe.nv.us/health/ehs/vector/wnvFact.html>.

**Environmental Consequences:****Impacts of Proposed Action:**

Under the Proposed Action's rest rotation system and the reduced forage consumption associated with shorter seasons of use in each pastures and elimination of TNR (up to 672 AUMS), residual grass cover would increase and provide additional forage, hiding and thermal cover for wildlife over a larger area than the current system provides. Hiding cover and nesting cover for sage-grouse would improve the most in Pastures I (seeded pasture), Pasture III and Pasture IV due to a rest rotation grazing system with the AUM reduction and change in season of use from current management. Some species that are expected to benefit include sage-grouse, sage sparrow, and small mammals as well as limited cover for young pronghorn antelope and mule deer. Golden eagles and other raptors would benefit from increased food sources responding to increases in cover and its effects on rodents, cottontails, and jack rabbits. Shrub cover is expected to remain within the range suitable for sage-grouse and other sage steppe obligate species. Wildlife benefits from improvements in riparian forage and hiding cover would remain the same or slightly increase. Aquatic species at these sites, including rainbow trout in Poison Creek, would benefit from

expected slight improvement of stream shading as a result of large woody plants increase. Any negative impacts of existing fences to wildlife would be mitigated by repairing fences to BLM standards and SOPs. This would reduce the possibility of entanglements of big game in the area including pronghorn antelope, and mule deer.

Sage-grouse and other ground nesting sagebrush obligate species such as sage sparrow and sage thrasher would be expected to benefit from residual and new grass cover and forbs as a result of rest/rotation grazing and intensive pasture management which reduces the potential for heavy grazing and negative impacts to sagebrush stands and native bunchgrasses. Every other year, direct impacts to nesting sage-grouse from the Proposed Action would be expected to be less than the current management since no grazing would be occurring during the nesting season in one of the two seeded pastures every other year (Pastures I). Every other year affects to sage-grouse would be negligible in Pastures III and IV due to the rest rotation system. The Proposed Action would provide indirect benefits by increasing the amount of residual grass nesting cover available for sage-grouse the next year because of the rest rotation system. Residual perennial grass cover would increase slightly in Pastures III and IV due to the change in season of use. This would also benefit other sage-steppe obligate species such as sage sparrow and sage thrasher. The Proposed Action's rest rotation system and AUM reduction would also benefit nesting birds in the other pastures since more residual grass cover would be available every year and there would be little to no direct impacts every other year. Any direct impacts to sage-grouse nesting would be similar in Pastures III and IV due to grazing occurring in the nesting season every other year. Pasture II (seeded pasture) would be used every year and impacts to sage-grouse nesting and other ground nesting birds would occur every year. Residual grass cover would remain at the same level that the current system provides. Pasture I would benefit the most from the Proposed Action. This pasture would be rested every other year, providing more nesting cover for sage-grouse than the current system provides. The impacts from grazing are still less than the current grazing management which prescribes use every season. Pasture VI would have a slight benefit from increased residual grass and increased thermal cover for large mammals as a result of the change in season of use and AUM reduction in these pastures. Riparian habitat, thermal cover and residual grass cover in Pasture X would improve with a reduced season of use from current management and a change in season of use. This change would benefit ground nesting birds and small mammals the most while providing a slight benefit to large mammals such as mule deer and pronghorn. Pasture V would remain the same or improve slightly under the Proposed Action due to a change in season of use. This change would benefit ground nesting birds and small mammals the most while providing a slight benefit to large mammals such as mule deer and antelope.

As stated above, the recent Federal Register publication pertaining to sage-grouse states "...a complex set of environmental and biotic conditions that support the West Nile virus cycle must coincide for an outbreak to occur. Currently the annual patchy distribution of the disease is keeping the impacts at a minimum" (Federal Register 2010, at page 13970). Under the Proposed Action, no new water developments within the allotment would occur and there would be no increased risk of West Nile virus.

Due to diet overlap, direct competition between cattle and bighorn sheep can occur; however this competition generally only occurs on moderate slopes. In areas of steep rocky terrain where bighorn are generally found, competition is much less since cattle generally prefer gentle slopes.

The effects of competition between bighorn sheep and cattle in the Crooks Lake Allotment are expected to be negligible based upon the overall lack of suitable habitat for bighorn sheep (less than 5% of allotment is occupied habitat).

Although there are no established bitterbrush transects within the Crooks Lake Allotment, bitterbrush exists throughout the allotment, mainly on the deeper soils at elevations above 5,500 feet. Implementation of the rest rotation grazing system in Pastures III and IV and change of season of use is expected to improve bitterbrush production and lessen competition between cattle and big game in comparison to current management by decreasing livestock use during the summer and fall period in the affected pastures. Generally cattle use bitterbrush only during late summer into the winter months; therefore forage competition would be negligible for one season in all the pastures rested. Increased bitterbrush health would provide for higher quality forage for deer and pronghorn as well as cover and forage for small mammals and birds.

Habitat changes towards DPC goals would be expected to provide increases in plant diversity and volume for wildlife. This should provide increased forage as well as opportunities for nesting and reduce the potential for predation on sage-grouse and other ground or near ground nesting birds.

#### Impacts of Proposed Action:

Under the Proposed Action, migratory birds within the allotment would benefit from improvements in riparian vegetation; providing more foraging and nesting opportunities due to a change in the season of use allowing riparian vegetation to recover more rapidly than the current system provides. Residual grass cover would improve throughout the allotment due to AUM reductions and shortened grazing periods within pastures. Effects to migratory bird species would be negligible every other year in rested pastures. Livestock grazing effects on juniper woodlands within the allotment would be negligible.

Because some wild horses are likely to remain in Pastures IV, V, and VI during term of the grazing permits and horses would be found in these pasture year-long, some localized habitats would be expected to not improve in condition and residual grass cover for nesting birds would remain lower in certain areas within the allotment.

#### Impacts of Alternative 2:

Although this alternative provides for a 45% reduction in livestock use, only one pasture is rested every year as opposed to existing management or the Proposed Action which each rest four pastures per year. Therefore, direct impacts to wildlife such as possible trampling of nests, competition for food and loss of seasonal cover are expected to be greater with this alternative. Alternative 2 also increases the number of cattle in pastures, except Seeding 1 and Seeding 2, which increases the likelihood of nest trampling for species like sage-grouse and migratory birds which may be nesting in those pastures. Potential trampling effects would be most prevalent during the spring and early summer use periods and would fall off later in the year as nesting subsides.

Residual nesting cover for sage-grouse in most pastures would be slightly less when compared to existing grazing management and the Proposed Action due to loss of rest in some pastures and/or later season grazing which would leave less forage available for the next nesting season. Impacts

would be expected to be greatest in Pastures III and IV which have active leks, not currently grazed later than 6/15, and rested every other year. Impact types would be similar for migratory birds which also require various types of cover to effectively conceal nests from both aerial and ground predators.

Alternative 2 would also eliminate Expanded Flexibility that allows the permittee to utilize an extra 15% of allowable AUMs. This would potentially provide long term benefits to wildlife by ensuring extra cover and food sources remain available.

Decreases in riparian habitat quality expected with this alternative would negatively impact wildlife habitats. Open meadow areas and lower tree density stream riparian areas used by sage-grouse for brood rearing are expected to be negatively impacted. Sage-grouse are known to use areas grazed by cattle; however this alternative is expected over time to reduce the quality and to some degree the amount of riparian habitat. Reduced quality habitats would be expected to provide fewer insects which are absolutely critical to the survival of sage-grouse chicks in their first few weeks of life. Adult sage-grouse also make use of insects due to their high protein content. Long term losses in woody riparian habitat like aspen, willow, and wild rose would negatively affect cavity and shrub nesting birds and a large variety of animals which feed on these species like songbirds, various rodents, and mule deer.

Golden eagles and other raptors would benefit in the short term from having more areas grazed which would make rodents and rabbits easier to catch. Over the long term, expected decreases in vegetation cover would negatively affect raptors by reducing the density of prey species.

Under this alternative, no new water developments would be constructed within the allotment and there would be no potential for increased risk of West Nile virus to sage-grouse.

The effects of competition between bighorn sheep and cattle in the Crooks Lake Allotment is expected to be the same as other alternatives based upon the overall lack of suitable habitat for bighorn sheep (less than 5% of allotment is occupied habitat), and NDOW has limited documentation of bighorn sheep being in the allotment. If a population of bighorn sheep were to become established in the allotment, dietary overlap and direct competition between cattle and bighorn sheep can occur. This competition generally only occurs on moderate slopes. In areas of steep rocky terrain where bighorn are generally found, competition is much less due to cattle preferring more gentle slopes.

In the long term, improvements in upland habitats would be expected and would result in increased species diversity and plant cover. Increased thermal cover would benefit a myriad of species including mule deer, pronghorn antelope, and small rodents and mammals. Sage grouse and other ground nesting birds would benefit in the long term from increased species diversity and a vegetation community mosaic containing multiple plant species. This would reduce potential predator risk, increase availability of different forage species, and potentially lead to increased nesting success. The small amount of bitterbrush scattered throughout the allotment in Pasture III and IV may experience heavier grazing when compared to the Proposed Action and existing management due to lack of rest every other year and late summer/early fall use prescribed with Alternative 2. Although cattle use will only occur later in the year in Pasture X, bitterbrush in this

pasture would likely remain the same or decline in form class (heavier hedging) since cattle use of bitterbrush occurs primarily in the late summer to winter periods. This decline would take several years to become apparent. Bitterbrush and other rose family species which experience heavy grazing become grazed to a point where they take on a “bonsai” appearance which makes their twigs and seeds more difficult to attain by birds, rodents and ungulates. Heavy hedging also reduces the palatability of bitterbrush for mule deer.

#### Impacts of No Action (Current Management):

Sage-grouse brood rearing habitat as well as summer range for mule deer and pronghorn would not improve as quickly as the Proposed Action. Fewer areas of increased cover and forage would be available without the rest/rotation and change in season of use included with the Proposed Action; therefore important sage-steppe upland habitats for birds would not improve as quickly as the Proposed Action and negative impacts from direct competition for forage or potential trampling of nests would occur over a larger area in any given year. Pasture I would be grazed every year and impacts to residual nesting cover and thermal cover for wildlife would be greater than the Proposed Action. Pastures II, III and IV would have less residual nesting cover than the Proposed Action would provide. The AUM reductions and change in season of use would not occur and impacts to wildlife habitat would be slightly greater and more widespread. Pastures VI, V and X would not improve/remains static as a result of higher use than the Proposed Action and a longer season of use. Bitterbrush would continue to improve although at a slower rate than the Proposed Action due to a longer season of use. These improvements would benefit mule deer, pronghorn, bird, and small mammal foraging opportunities although less than the Proposed Action provides.

The No Action Alternative includes Expanded Flexibility which allows for actual grazing use to increase in the future. Although the Expanded Flexibility has not been used in the past, under the No Action Alternative grazing use could be increased by up to 15% every year. If the Expanded Flexibility were used in the future, increased grazing would result in less residual nesting cover for ground nesting birds and less thermal cover for larger mammals such as antelope and mule deer. Under the No Action Alternative riparian habitats could be degraded as a result of increased grazing use and direct competition between cattle and wildlife for water.

Due to diet overlap, direct competition between cattle and bighorn sheep can occur; however this competition generally only occurs on moderate slopes. In areas of steep rocky terrain where bighorn are generally found, competition is much less due to cattle preferring more gentle slopes. The effects of competition between bighorn sheep and cattle in the Crooks Lake Allotment are expected to be the same or similar to the Proposed Action based upon the overall lack of suitable habitat for bighorn sheep (less than 5% of allotment is occupied habitat), and NDOW has limited documentation of bighorn sheep in the allotment.

Indirect impacts and benefits to golden eagles and other raptors would remain the same and raptors would continue to benefit in the short term from having more areas grazed which would make rodents and rabbits easier to catch. Over the long term, expected decreases in vegetation cover and reductions in residual grass cover would negatively affect raptors by reducing the density of prey species over a larger area than what would occur with the Proposed Action.

Under the No Action Alternative migratory birds within the allotment would not benefit from

improvements in riparian vegetation. The No Action Alternative would not change the season of use, and would allow for higher AUM use. The effects of the No Action Alternative including foraging and nesting opportunities would remain static to slightly increase within riparian areas. Residual grass cover would not improve throughout the allotment and would be less than the Proposed Action because of a longer season within pastures. Impacts to migratory birds would occur over a larger area than the Proposed Action and ground nesting birds would be impacted more than the Proposed Action due to less residual herbaceous cover. Effects to migratory bird species would be negligible every other year because of the rest rotation of pastures. Livestock grazing effects on juniper woodlands within the allotment would be negligible.

#### Impacts of No Grazing:

The No Grazing Alternative would be expected to achieve similar results as the Proposed Action although probably on public lands only. Since the No Grazing Alternative only affects public lands, fenced private lands could see an increase in use to make up for the loss of cattle forage. Private lands make up approximately 16.3 % of the allotment with only some portions currently fenced. Due to the amount of scattered private lands in this allotment, an increased amount of fencing would be required to separate cattle on private lands from public lands. This would be expected to negatively impact wildlife by increasing the chance of birds like sage-grouse flying into some fences, increasing potential predator perch sites, and causing larger wildlife like mule deer to adapt to these new fences. Fences would likely not be built to BLM specifications and could increase the likelihood of mule deer and pronghorn antelope entanglements and mortalities. Any potential increase would also be dependent on the amount of fence built. Lack of cattle would cause some shifts in habitat use over both the short term and long term. If species components are available, immediate increases in forage and cover for wildlife would be expected with increases in upland vegetative species diversity occurring faster than the Proposed Action. Short-term shifts in habitat use could be seen with sage-grouse use of meadows and riparian areas and long-term shifts could be expected with nesting habitat. Nesting cover for sage-grouse and migratory birds would increase in both the short and long term and thermal cover for large mammals would improve faster than under the Proposed Action. Residual grass cover would increase in all of the pastures and thermal cover of habitat for large mammals would increase faster than the Proposed Action. The possibility of trampling of nests would be eliminated with an absence of livestock grazing. Upland bird species breeding densities should increase with higher grass cover and vegetation volume (Mills et al. 1991) and rodent and raptor populations would experience localized increases in numbers. Pronghorn antelope and mule deer use would also be expected to increase with improving condition of upland transition and summer habitats. Higher quality kidding and fawning habitat should result over time, with increased opportunities for use and dispersal along with a larger available home range. Competition for water and forage resources between livestock and large mammals would be nonexistent. With the No Grazing Alternative, impacts to migratory birds from livestock grazing would cease to exist.

## CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) regulations that implement NEPA defines a cumulative impact as: “The impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions.”

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The assessment area for this project is comprised of the Cowhead Slough, Crooks Lake, First Creek, Rock Creek, Sand Creek and Schamp Creek 6<sup>th</sup> Order Watersheds as shown on Map 8 Appendix B.

No cumulative impacts are expected to Migratory Birds, Threatened and Endangered Species, Lands and Realty, or to Social and Economic Values; therefore, these resources will not be carried further in this analysis.

**Past and Present Actions:**

On the basis of aerial photographic data, current agency records and analysis, the following past and present actions, which have impacted the assessment area to varying degrees, have been identified within the cumulative assessment area: livestock grazing, transportation and access, recreation, and wildfire.

Livestock Grazing – Livestock grazing has a long history in the region dating back to about 1865 when Fort Bidwell was established to protect settlers, and the Surprise Valley –Puelba Road, a travel route between California and mining districts of northern Nevada, and Idaho. Livestock operations were generally associated with the establishment of ranches in Surprise Valley and large cattle and sheep enterprises occurred throughout the region. Domestic livestock grazing likely occurred in assessment area yearlong or until snows and lack of forage forced animals back to the home ranches. Although, it is difficult to quantify the amount of livestock use that occurred during this period, 120,000 sheep were noted in Surprise Valley as late as the 1920s. Excessive grazing depleted native bunchgrasses during this period, particularly on the lower elevations of the range.

Following the passage of the Taylor Grazing Act in 1934, a variety of range improvement projects were implemented through the years in order to support the management of the allotments. Within the assessment area, collectively, 178 miles of livestock fencing (both public and private), 74 reservoirs have been constructed on public and private land by the BLM and private landowners to support grazing management objectives. Additionally, an estimated 4,340 acres of public and private land have been treated (2,792 acres seeded and 1,548 acres sprayed) to reduce sagebrush cover and reseeded with improved forage grasses. Nearly all these rangeland improvement projects were constructed during early 1950's to the late 1970s.

The grazing capacities for the allotments in the assessment area were determined by range surveys in 1963. This range survey resulted in permit adjudications that were fully implemented by the early 1970s. Grazing use reductions varied from 20-73% by permits and allotments within the assessment area.

Today, cattle and hay production still remains the dominant use in the Surprise Field Office area. Throughout its history, ranching has remained a dispersed activity characterized by localized areas of more intensive use.

Transportation and Access – Past and present actions within the assessment area are supported by transportation system elements including approximately 250 miles of improved BLM and county gravel roads. There are many unimproved two-tracks and dirt roads that provide access to the area. Most of these roads have their origin in ranching access and few are regularly maintained.

Recreational Activities – Dispersed recreation occurs within the assessment area and includes, wildlife viewing, hunting, off-highway vehicle use and camping. The Barrel Springs Backcountry Byway crosses the northern portion of the cumulative impact assessment area (CA) and receives low levels of visitor use primarily during the late spring through fall. Fee Reservoir is a local recreation destination with a boat ramp and hatchery stocked fishery. Additionally, the entire CA receives dispersed recreation use primarily associated with hunting for mule deer, pronghorn antelope, and sage-grouse.

Ruby Pipeline – Ruby Pipeline is a buried 42 inch natural gas transmission pipeline that stretches approximately 680 miles, originating in eastern Wyoming and terminating in Oregon. The pipeline crosses through the northern portion of the Nevada, and northeast portion of the assessment area. In the Crook Lake allotment the pipeline crosses through pasture 8, mostly on private land. The pipeline was completed during the summer 2011, and reclamation activities will continue for several years. The effects of the pipeline have been analyzed in the Ruby Pipeline Environmental Impact Statement.

Wildfire – two wildfires, one in 1985 and the other in 1999 have burned approximately 6,878 acres or about 5 percent of the assessment area (BLM 2006f). These wildfires were allowed to re-vegetate without any additional treatments.

Habitat Improvement – BLM has conducted a number of habitat improvement projects associated with removal of juniper trees to prevent loss of sagebrush composition on 10 areas totaling 1,343 acres.

Wild horses – The Carter Reservoir Herd Management Area (HMA) is located at on the southern end of the assessment area. Wild horses from this herd have spread and become established throughout the northern 2/3 of the assessment area. Wild horse population will double approximately every 4 years, consequently BLM will periodically (approximately 4-5 year intervals) conduct round-ups to control wild horse populations within and outside HMAs.

### **Reasonably Foreseeable Future Actions (RFFAs)**

Since the life of the proposed action is ten years, this time frame is considered to be most appropriate for considering the incremental effect of reasonably foreseeable future actions. Many of the past and present actions discussed above are expected to persist through this time frame, though the relative intensity of these actions could vary depending on a variety of economic factors.

Livestock grazing is projected to occur within the CA at unknown but probably decreasing levels as implementation of Rangeland (Land) Health Standards and changes in the economics of public land grazing continue to reduce livestock use on public lands, but offset somewhat as forage consumption increases on private lands. Since the Crooks Lake Allotment is not within a Herd

Management Area, BLM will continue to conduct round-ups to remove wild horses from the allotment. Nevertheless, the area utilized by wild horses and the populations of wild horse herds is expected to grow due to controversies associated with gathering and disposal of horses and the financial costs to the public to administer the wild horse program increase.

Recreational use is expected to increase as a result of population growth in the areas that surround the assessment area. Some activities such as hunting and off-road vehicle use would continue and likely increase over time.

The number and size of noxious weed infestations could increase, associated with increased mobility of weed seeds associated with increasing public use. This will be followed by increased but never 100% effective efforts by local agencies and landowners to control noxious weed species.

El Paso Corporation's Ruby Pipeline began construction in the summer of 2010, and was completed during the summer 2011. This natural gas pipeline route traverses approximately 2 miles of the northeast corner of the Crooks Lake Allotment, passing through pastures V and VIII, mostly on private land. The reclamation plan for the pipeline route requires reseeding and other measures to allow for soil and vegetation recovery. The details can be found in the Ruby Pipeline Project FEIS Appendix L *Draft Restoration and Revegetation Plan: Nevada, October 2009*.

There are no planned or proposed mineral exploration or wind energy test sites. Juniper woodlands will continue to expand into currently unoccupied sites and increase cover on currently occupied sites. Projects designed to remove or reduce juniper cover to maintain and restore native sagebrush communities will continue but at a rate less than the rate sagebrush communities are lost through stand replacement by juniper.

Table 4.1 Summary of Cumulative Effects Expected to Resources from Each Alternative Compared to Existing Conditions:

■ = Negative Impact 0 = No Expected Impacts + = Positive Impacts				
Resource	Alternative 1 Proposed Action	Alternative 2	Alternative 3 No Action	Alternative 4 No Grazing
CULTURAL RESOURCES	0	0	0	+
INVASIVE, NON-NATIVE SPECIES	0	0	0	0
LIVESTOCK MANAGEMENT	+	0	0	-
VEGETATION/ SOILS/ THREATENED AND ENDANGERED PLANTS	+	0	■	+
WETLANDS/RIPARIAN ZONES	+	0	0	+
WILD HORSES AND BURROS	0	0	0	+
WILDLIFE/THREATENED AND ENDANGERED SPECIES	+	0	-	+

#### **4.1.1 CULTURAL RESOURCES**

##### **Impacts from Past and Present Actions**

Since many Great Basin prehistoric sites are surface or near surface sites, any ground disturbing activities destroy site integrity, spatial patterning and ability to determine site function. Datable organic features are either destroyed or contaminated. Previous localized grazing, range improvements, road construction/maintenance have caused these types of impacts to cultural resources. Grazing has probably affected a larger number of sites than is documented. Looting sometimes occurs but inadvertent actions from recreation, rock hounding and other off-road activities affect cultural resources as well.

##### **Impacts from Reasonable Foreseeable Future Actions**

Recreational use is expected to increase and these activities sometimes coincide with sensitive cultural resources causing displacement and mixed deposits of prehistoric/historic and modern debris. Vegetation management activities could increase the visibility of cultural sites potentially exposing them to increased looting. Inventories associated with planning for vegetation management would increase the state of knowledge concerning the local and regional cultural setting.

Several areas in the Crooks Lake Allotment have been identified for juniper reduction projects. Juniper encroachment into aspen stands and sage-grouse habitat are the primary reasons for the projects. Site specific impacts of the reduction projects will be addressed in a separate NEPA document.

##### **Cumulative Impacts:**

##### **Alternative 1 - Proposed Action**

The cumulative effects of the Proposed Action on cultural resources should be an incremental reduction in the rate of disturbance to site integrity, spatial patterning, and site function. Impacts to datable organic features would also be reduced. This reduction in impacts would be a result of the expected improvement in ecological condition over an extended period of time as concentrated grazing in sensitive riparian zones is reduced and desirable deep root native grass species increase in composition. The completion of inventories and evaluations would result in incorporation of mitigation measures which would act to further reduce long term cumulative impacts.

##### **Alternative 2 - 4-Pasture Rest/Rotation System for Native Ranges**

The cumulative effects of this alternative on cultural resources would be similar but to a lesser degree, to those of the Proposed Action.

##### **Alternative 3 - Current Management (No Action)**

The cumulative effects of this alternative on cultural resources would be a continued rate of disturbance to sites and organic features as a result of no change in management.

##### **Alternative 4 - No Grazing**

This alternative represents an incremental improvement in ecological condition and eliminates one source of impacts to cultural resources. Other non-grazing actions may have an incremental impact if they coincide with cultural resources.

#### **4.1.2 INVASIVE, NON-NATIVE SPECIES**

##### **Impacts from Past and Present Actions**

Ground disturbances associated with past and present actions, and impacts associated with wildfire have resulted in the expansion of invasive, non-native species. Management actions associated with these species has led to better control in some cases.

##### **Impacts from Reasonable Foreseeable Future Actions**

While currently invasive weeds are limited in number and distribution, future increases in recreation are likely to increase the risk of spreading invasive species to the allotment, and adjacent areas. Recreation and other activities such as the Ruby Pipeline construction could also introduce new species not currently found on the allotment.

Without periodic maintenance and prompt treatment of identified infestations, increases in the proliferation of invasive, nonnative species could occur. Currently the cumulative impact is considered moderate. Maintenance and improvement in the condition of vegetation from improved grazing practices and implementation of best management practices from activities that are permitted or authorized by the BLM would likely maintain or make areas more resilient to infestation by invasive species. Other activities within the assessment areas that spread invasive species would still continue, such as wildfire, dispersed recreation activities, and road maintenance.

##### **Cumulative Impacts:**

##### **Alternative 1 - Proposed Action**

Improvements in rangeland health conditions, including adherence to utilization guidelines would decrease the likelihood of invasive species becoming established. However, there would continue to be a risk of invasive species becoming established along roads by non-grazing activities such as vehicles and OHVs.

##### **Alternative 2 - 4-Pasture Rest/Rotation System for Native Ranges**

Adherence to utilization guidelines would decrease the likelihood of invasive species becoming established. However, there would continue to be a risk of invasive species becoming established along roads by non-grazing activities such as vehicles and OHVs.

##### **Alternative 3 - Current Management (No Action)**

Increases in the proliferation of invasive, non-native species is not expected to increase over existing levels. Other non-grazing activities within the allotment could lead to the spread or introduction of new species in the allotment. Proliferation and the spread of invasive species is likely to continue without inventory and treatment of known populations.

##### **Alternative 4 - No Grazing**

The No (livestock) Grazing Alternative is expected to result in incremental improvement in

ecological condition over the long term, which could decrease the likelihood of invasive, non-native species becoming established.

#### **4.1.3 LIVESTOCK MANAGEMENT**

##### **Impacts from Past and Present Actions**

Livestock grazing has had a long history in the region dating back to the late 1800's. Prior to the Taylor Grazing Act, livestock were generally turned out and allowed to drift throughout the assessment area until snow or the lack of forage forced animals back to the home ranch during the winter months. This type of use continued until the 1940's. Impacts of past actions include general over-utilization of forage resources that particularly decreased the composition and production of native bunchgrasses. Implementation of the Taylor Grazing Act provisions and Crooks Lake Allotment Management Plan required a combination range improvements projects on the allotment. The projects include primarily fences and small stock ponds or reservoirs.

Impacts of present actions include the maintenance of existing projects and continued grazing as authorized. Ranching and hay production is expected to remain the dominant use in the cumulative impact assessment area.

##### **Cumulative Impacts:**

##### **Alternative 1 - Proposed Action**

There would be no cumulative impacts to livestock management as a result of the Ruby Pipeline. Increases in recreation and OHV use could result in incrementally higher impacts to livestock management through added pressures and workload by the permittee in keeping gates closed and fences maintained.

##### **Alternative 2 - 4-Pasture Rest/Rotation System for Native Ranges**

The cumulative impacts under this Alternative would be similar to the Proposed Action.

##### **Alternative 3 - Current Management (No Action)**

The cumulative impacts under the Current Management Alternative would be similar to the Proposed Action.

##### **Alternative 4 - No Grazing**

The cumulative impacts of this alternative would be that the operator would no longer manage his cattle on public lands in the Crooks Lake Allotment.

#### **4.1.4 VEGETATION**

##### **Impacts from Past and Present Actions**

Prior to the Taylor Grazing Act (TGA) of 1934, forage utilization was high when thousands of cattle, sheep, and horses grazed lands in northern Nevada. The TGA for the first time regulated grazing on public lands, required ranchers who met base property qualifications to have a permit and to pay a grazing fee. Also during this period, thousands of horses roamed the Nevada desert unbranded and unclaimed. Prior to the Taylor Grazing Act, grazing practices contributed significant impacts to soil and vegetation resources. The soil tolerance was exceeded and the soil

medium for plant growth was not maintained. Grazing impacts include a significant reduction of understory plants on some sites. Cheatgrass and other non-native annual vegetation were also believed to have been introduced into the area in the early 1900s.

In order to manage livestock, a variety of range improvement projects have been implemented through the years dating back to the 1940s. While past livestock grazing decisions resulted in changes to livestock numbers and seasons of use, carrying capacities were not established until the late 1960s on the Crooks Lake Allotment. Also, there was little interest to improve wetland and riparian zones until the 1990s, and therefore riparian systems generally continued to decline or were in poor condition through this period.

The present livestock grazing system and efforts to manage livestock grazing within the Crooks Lake Allotment has reduced past historic soil impacts and improved current soil resource conditions; however, current management is continuing to contribute to heavy utilization in some areas, which is affecting vegetation resources.

### **Cumulative Impacts:**

#### **Alternative 1 - Proposed Action**

Reclamation success within the 150 foot wide construction corridor for the Ruby Pipeline would be affected by climatic conditions following seeding treatment. Livestock management under the Proposed Action and No Action alternatives could cumulatively affect reclamation success as a result of grazing of young seedling plants, particularly in the first two growing seasons following the seeding treatment.

These potential negative impacts are offset by other measures in the Ruby Pipeline Reclamation and Compliance plan however.

This offset is provided by the presence of fallback standards for retreatment or near site mitigation. As a result, impacts to vegetation, soils or wildlife resulting from any failures in reclamation success would be expected to be reduced or eliminated by follow-up treatments.

#### **Alternative 2 - 4-Pasture Rest/Rotation System for Native Ranges**

The cumulative impacts to vegetation would be similar to those of the Proposed Action but to a lesser degree due to the decreased cattle numbers.

#### **Alternative 3 - Current Management (No Action)**

Current management would be in place in the event the Proposed Action is not implemented. Cumulative impacts to vegetation, soils and wildlife under this alternative would be the same as for the Proposed Action due to the fallback standards for retreatment.

#### **Alternative 4 - No Grazing**

Cumulative impacts of the No Grazing Alternative coupled with impacts from past, present, and reasonably foreseeable future actions would result in foregoing an opportunity to improve rangeland health on the uplands. Impacts from wild horses would be expected to continue in riparian areas, particularly during the hot season.

#### **4.1.5 WILDLIFE RESOURCES Including Special Status Species**

##### **Impacts from Past and Present Actions**

Minor to moderate amounts of displacement have resulted from disturbances to habitat for wildlife, including sage-grouse, associated with livestock grazing management, transportation and access management, and dispersed recreation use. There are no known federally listed Threatened or Endangered Species in the allotment. Long term benefits to wildlife have been realized as watershed conditions have been stabilized. This has been a result of the replacement of lost vegetation by plant species which are more desirable than invasive and noxious weeds and which are more effective at stabilizing watershed conditions.

##### **Reasonable Foreseeable Future Actions**

Crooks Lake does not lie within a HMA; however, there is a population of wild horses within the allotment. In 2007, 100 wild horses were gathered from the allotment. At least 30 wild horses still remain and an additional gather would take pressure off public and private riparian areas in the allotment and reduce direct and indirect competition for forage. Additional cover would also be made available for nesting birds and small mammals.

Juniper has encroached throughout the northern part of the resource area. Juniper encroached areas constitute approximately 50% of the allotment at this time. Due in part to past management as well as climatic changes, juniper have encroached into many areas in the Surprise Field Office but in particular in the northern half including the Crooks Lake Allotment. Juniper can act as very effective perches for raptors but also reduce the amount and quality of sagebrush and forbs that are critical to the diet of sage-grouse. Removal of encroaching juniper will provide short and long term benefits to sage-grouse as well as other sage-steppe species. Benefits are expected due to anticipated increases in grass cover which would provide additional hiding and nesting cover. Forbs, which are important sources of protein for many species, are also expected to increase to some degree in areas of juniper reduction. Required rest of pastures will reduce the possibility of direct impacts to wildlife by reducing competition for forage and leaving additional residual nesting cover. Delaying cattle use until July 1<sup>st</sup> on higher elevations would reduce potential direct impacts to nesting ground birds since most nesting has occurred before July. Cavity nesting birds such as western bluebirds or other species which nest in trees such as American robins would lose additional nesting trees; however juniper is not considered limiting to these species due to the density of trees. Some loss of thermal cover for large game would occur; however, junipers as well as other cover types are abundant in the allotment.

Livestock management, dispersed recreation, and transportation and access would continue displacing wildlife in areas immediately adjacent to these activities. Livestock management activities would benefit the majority of wildlife species by improving water distribution and availability. Vegetation management via pasture rotation would benefit wildlife by restoring vegetative conditions and diversity and reducing direct impacts to wildlife.

El Paso Corporation's Ruby Pipeline began construction in the summer of 2010. This natural gas pipeline will traverse approximately 2 miles of the northeast corner of the Crooks Lake Allotment, passing through pastures V and VIII. The 115 foot ROW will impact about 28 acres of habitat. The ROW will be reclaimed based on criteria for soil stability and vegetation recovery. Full

recovery is not expected for several decades.

### **Cumulative Impacts:**

#### **Alternative 1 - Proposed Action**

Livestock and wild horse grazing in upland habitats would continue to impact wildlife directly through competition for food and water; however, most impacts to wildlife occurred in the past with changes in deep rooted perennial grasses i.e. Thurber's needlegrass and bluebunch wheatgrass. Impacts would be lessened in all pastures with more nesting opportunities, cover and forage available for birds and mammals in the surrounding areas. Riparian areas would remain in properly functioning condition and will benefit wildlife in the area by providing higher quality water sources with more adjacent hiding cover and more diverse vegetation components.

#### **Alternative 2 – 4-Pasture Rest/Rotation System for Native Ranges**

Cumulative impacts from livestock would continue, negatively impacting deep rooted perennial bunchgrasses and upland habitats within the allotment. Direct impacts to wildlife from cattle would be increased possibly lowering local nest success of various birds including sage-grouse. Riparian areas would still provide water sources but with less adjacent hiding cover and diverse vegetation components.

#### **Alternative 3 - Current Management (No Action)**

Cumulative impacts from livestock and wild horse use would continue, negatively impacting deep rooted perennial bunchgrasses and upland habitats within the allotment. Cattle numbers would be slightly higher and the grazing season slightly longer in pastures. Grazing use could be increased by up to 15% in the future. Riparian areas would remain in properly functioning condition and would benefit wildlife in the area by providing quality water sources with adjacent hiding cover and diverse vegetation components.

#### **Alternative 4 - No Grazing**

Under the No Grazing Alternative, grazing management would be eliminated as a reasonably foreseeable future action. All cumulative effects to wildlife habitat in the analysis area that are associated with livestock use would cease.

### **4.1.6 WETLANDS/RIPARIAN ZONES**

#### **Past and Present Actions**

Wetlands and riparian areas prior to the mid-1980s were considered “sacrifice areas” which were expected to be used severely in order to achieve proper use of the uplands. As a result, wetlands and riparian areas did not receive management emphasis except in relation to their ability to provide needed water for domestic animal use.

In 1991 the BLM implemented the “Riparian – Wetland Initiative” for the 1990s which, for the first time, established national goals and objectives for management of riparian and wetland resources on BLM administered public lands. Chief among these objectives was the mandate that 75 percent or more are in proper functioning condition by 1997. Since the launching of this initiative, the BLM has provided management focus on achieving this goal, and many areas were

improved. Some areas continue to not achieve the goal of properly functioning condition. Livestock use is one of the activities which can negatively impact wetlands and riparian areas. As riparian zones decline, riparian vegetation is less capable of dissipating energy, storing water and filtering sediment. Erosion increases and water storage capacity is reduced. In the Crooks Lake Allotment, all assessed riparian areas are in properly functioning condition and are effectively filtering sediment, dissipating energy during high flows and storing water within the riparian area. At this time, riparian areas in the Crooks Lake Allotment are summarized as “all drainages, springs/seeps and pit reservoirs are currently meeting the needs of beneficial uses for watering livestock, wild horses and wildlife.”

### **Reasonable Foreseeable Future Actions**

Future activities from livestock grazing management, dispersed recreation and transportation would continue to impact riparian areas within the assessment area. Under all alternatives, a reduction in impacts to riparian areas from livestock grazing management would be expected with more intensive and continued adjustment. Impacts to wetland riparian areas from dispersed recreation and transportation is low, but would be expected to continue in some areas, with some reductions over time.

El Paso Corporation’s Ruby Pipeline will not be passing through any riparian area in the Crooks Lake allotment.

Any juniper reduction projects around riparian areas are expected to benefit these sites by reducing the uptake of additional moisture into these trees and increasing the soil moisture available for riparian and upland vegetation in these areas. Since cattle often seek shade under juniper trees around riparian areas, removing juniper near riparian areas will also reduce trampling and foraging around these areas. Expected benefits include increased amounts and types of riparian vegetation such as willows and rose.

### **Cumulative Impacts:**

#### **Alternative 1 - Proposed Action**

The cumulative impact of the Proposed Action would be long term improvements in local riparian systems. Riparian areas within the allotment are currently meeting objectives and are in properly functioning condition. The Proposed Action would maintain riparian areas at properly functioning condition.

#### **Alternative 2 – 4-Pasture Rest/Rotation System for Native Ranges**

Riparian areas within the allotment are currently meeting objectives and are in properly functioning condition. Riparian areas would continue to function properly under Alternative 2 due to the decreased stocking rates.

#### **Alternative 3 - Current Management (No Action)**

Cumulative impacts of current management would still provide long term benefits to riparian systems in the general area. Riparian areas within the allotment are currently meeting objectives and are in properly functioning condition. The No Action Alternative would maintain riparian areas at properly functioning condition.

#### **Alternative 4 - No Grazing**

Alternative 4 would not contribute to cumulative effects to riparian resources, because no grazing is being proposed under this alternative.

### **4.1.7 WILD HORSES AND BURROS**

#### **Past and Present Actions**

While Crooks Lake Allotment is not within a wild horse Herd Management Area (HMA); the population was estimated at 125 head in 2009, and following a gather of 100 horses in September 2009, actual AUM use by horses was approximately the same as cattle actual use on the allotment. The most recent aerial inventory completed in June 2010 indicated the minimum population of 30 wild horses in the allotment. These wild horses will continue to use the allotment on a year-around basis and will likely drift into adjacent areas. Horses from Carter Reservoir HMA will also continue to use the Crooks Lake Allotment, and the population will likely increase.

#### **Reasonable Foreseeable Future Actions**

The area utilized by wild horses and the population is expected to increase at rate of at least 20% per year, and increases could be much higher rate as horses move into the allotment from the Carter Reservoir HMA. Future gathers could be delayed due to controversies associated with gathering, care of horses and the financial cost increases to the public to administer the wild horse program.

BLM will continue to conduct wild horse population inventories and gathers in the future. While the timing and frequencies of these gathers is unknown, it is recommended that gathers occur at four year intervals to keep populations at appropriate management levels. Gathers in the Crooks Lake Allotment will likely occur in conjunction with wild horse removals from the Carter Reservoir HMA.

#### **Cumulative Impacts:**

#### **Alternative 1 - Proposed Action**

At existing population levels wild horse forage use would be approximately 1/3 of cattle use, and wild horse use is expected to increase prior to any future gathers. When the population reaches approximately the same level of cattle use, the benefits of the proposed action to native bunchgrasses is expected to be minor. Yearlong and seasonal wild horse trampling impacts to soils (when wet) would breakdown soil structure, which would favor swallow rooted grasses.

#### **Alternative 2 - 4-Pasture Rest/Rotation System for Native Ranges**

The cumulative impacts of this alternative are expected to be same the proposed action

#### **Alternative 3 - Current Management (No Action)**

Under the No Action Alternative, grazing impacts would continue at riparian water sources, and ecological habitat resources would not improve. Riparian standards would not be met, and sites functioning at risk could degrade further, possibly below biological thresholds, making recovery periods longer.

#### **Alternative 4 - No Grazing**

Reduced competition on the uplands from a lack of cattle grazing may improve wild horse health, which could result in increased wild horse herd growth rates. Future gathers would require a large number of wild horses to be gathers, with an overall funding increase to conduct the gathering process.

## **CONSULTATION AND COORDINATION**

#### **Persons, Groups, and Agencies Consulted:**

Crooks Lake Allotment permittees were met with on several occasions to discuss past grazing management and Alternatives proposed in the EA.

#### **List of Preparers:**

Julie Rodman, Archaeologist

Roger Farschon, Ecologist

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Scott Soletti, Wildlife Biologist/Water Resources

Steve Mathews, Rangeland Management Specialist

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## APPENDIX A: 1977/2009 Photo Trend Study Comparison

The following tables summarize data collected from five trend study sites on the Crooks Lake Allotment in 1977 and 2009.

TREND SITE 45 18 27									
CLAYPAN 10-14" PZ (JUOC)ARAR8/PSSPS-ACTH7(POSE-FEID)									
SPECIES	% COMPOSTION		% SPECIES COVER		% OVERALL LIVE COVER		% LITTER		OBJECTIVE
	1977	2009	1977	2009	1977	2009	1977	2009	
POSE	2.1	14.8	0.37	0.85					
ELEL5	1.7	9.23	0.31	0.53					≤ 1%
FEID	1.7	9.4	0.31	0.54					> 1%
BRJA	0.6	5.4	0.12	0.31					
ARAR8	83.7	53.65	14.71	3.08					
ALL					17.57	5.74			
ALL							4.25	15.23	

TREND INDEX SUMMARY 45 18 27		
	1977	2009
Composition, Key Species (%) FEID	1.7	9.4
Cover, Live Vegetation (%)	17.57	5.74
Seedlings, Key Species (number)	0	0
Litter, Plot Total (%)	4.25	15.23
TOTAL	23.52	30.37

Key species – Idaho fescue

Percent cover by key species should not be less than 1% and number of plants should not be less than two.

Percent cover of bottlebrush squirreltail should not exceed that of Idaho fescue

TREND SITE 45 18 08									
CLAYPAN 10-14" PZ (JUOC)ARAR8/PSSPS-ACTH7(POSE-FEID)									
SPECIES	% COMPOSTION		% SPECIES COVER		% OVERALL LIVE COVER		% LITTER		OBJECTIVE
	1977	2009	1977	2009	1977	2009	1977	2009	
POSE	23.5	26.46	0.78	5.26					Total cover for all grass should be 1-3%
ACTH7	27.7	3.77	0.92	0.75					
ARARL3	11.1	69.67	0.37	13.85					
ALL					3.31	19.88			
ALL							4.5	1.84	

TREND INDEX SUMMARY 45 18 08		
	1977	2009
Composition, Key Species (%) ACTH7	27.77	3.77
Cover, Live Vegetation (%)	3.31	19.88
Seedlings, Key Species (number)	0	0

TREND INDEX SUMMARY 45 18 08		
	1977	2009
Litter, Plot Total (%)	4.5	1.84
TOTAL	35.51	25.49

Key species – Thurber's needlegrass

Total percent cover for all grass species in the plot should be from 1-3%. Rational is that percent cover on species is so little because plot is very rocky and it would be difficult to detect cover change.

Number of key species should be no less than one.

TREND SITE 46 17 32									
CLAYPAN 10-14" PZ (JUOC)ARAR8/PSSPS-ACTH7(POSE-FEID)									
SPECIES	% COMPOSTION		% SPECIES COVER		% OVERALL LIVE COVER		% LITTER		OBJECTIVE
	1977	2009	1977	2009	1977	2009	1977	2009	
POSE	28.19	53.6	23.8	5.44					
ELEL5	4.55	0.49	0.39	0.05					
ARAR8	0	32	0	3.25					
ALL					8.46	10.15			
ALL							0	38.25	

TREND INDEX SUMMARY 46 17 32		
	1977	2009
Composition, Key Species (%) ACTH7	4.55	0.49
Cover, Live Vegetation (%)	8.46	10.15
Seedlings, Key Species (number)	0	0
Litter, Plot Total (%)	0	38.25
TOTAL	41.2	48.89

Key species – bottlebrush squirreltail

Percent cover of key species should be between 3 and 9%. Number of bottlebrush squirreltail plants should not be less than two. Number of rabbitbrush plants found in plot should remain at zero.

TREND SITE 46 17 19									
CLAYPAN 10-14" PZ (JUOC)ARAR8/PSSPS-ACTH7(POSE-FEID)									
SPECIES	% COMPOSTION		% SPECIES COVER		% OVERALL LIVE COVER		% LITTER		OBJECTIVE
	1977	2009	1977	2009	1977	2009	1977	2009	
POSE		91		19.16					
AGCR	95.1	8.35	6.08	1.75					
BRTE		0.24		0.05					
ALL					6.4	20.96			
ALL							2.2	7.85	

TREND INDEX SUMMARY 46 17 19		
	1977	2009
Composition, Key Species (%) AGCR	95.1	8.35
Cover, Live Vegetation (%)	6.4	20.96

<b>TREND INDEX SUMMARY 46 17 19</b>		
	<b>1977</b>	<b>2009</b>
Seedlings, Key Species (number)	0	2
Litter, Plot Total (%)	2.2	7.85
<b>TOTAL</b>	<b>103.7</b>	<b>39.16</b>

Key species – Crested wheatgrass

Percent cover of key species should be between 6 and 13 percent. Number of mature crested wheatgrass plants should not be less than 12. This is the number of mature plants that can be supported in the plot.

Key species should be found in all but three 1X1 foot quadrats within plot.

<b>TREND SITE 45 18 16</b>									
<b>CLAYPAN 10-14" PZ (JUOC)ARAR8/PSSPS-ACTH7(POSE-FEID)</b>									
<b>SPECIES</b>	<b>% COMPOSITION</b>		<b>% SPECIES COVER</b>		<b>% OVERALL LIVE COVER</b>		<b>% LITTER</b>		<b>OBJECTIVE</b>
	<b>1977</b>	<b>2009</b>	<b>1977</b>	<b>2009</b>	<b>1977</b>	<b>2009</b>	<b>1977</b>	<b>2009</b>	
POSE	7.42	70	1.95	4.48					
PSSPS	13.91	0	3.66	0					
ACTH7	1.52	0	0.4	0					
ARAR8	13.68	28.28	3.6	1.81					
ALL					<b>26.33</b>	<b>6.4</b>			
ALL							<b>0</b>	<b>10.68</b>	

<b>TREND INDEX SUMMARY 45 18 16</b>		
	<b>1977</b>	<b>2009</b>
Composition, Key Species (%) ACTH7	1.52	0
Cover, Live Vegetation (%)	26.33	6.4
Seedlings, Key Species (number)	0	0
Litter, Plot Total (%)	0	10.68
<b>TOTAL</b>	<b>27.85</b>	<b>17.08</b>

Key species – Bluebunch wheatgrass

Percent cover of key species should be between 1 and 4 percent. Number of key species should not be less than one.

Thurber's needlegrass should also remain in the plot

## **APPENDIX B: Maps**

Map 1 Crooks Lake Allotment

Map 2 Proposed Action Grazing System

Map 3 Four Pasture Alternative Grazing System

Map 4 No Action Alternative Grazing System

Map 5 Range Improvement Projects

Map 6 Composite Use Pattern Map

Map 7 1979 Wilderness Inventory

Map 8 2009 Wilderness Inventory

Map 9 Riparian Assessment Sites

Map 10 Vegetation Communities

Map 11 Cumulative Assessment Areas

